Kramer Electronics, Ltd.

USER MANUAL

Model:

VM-5DS

Video Audio Distribution Amplifier / Scaler

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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 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **VM-5DS** *Video Audio Distribution Amplifier / Scaler*! It is ideal for:

- Video audio duplication, delivering undiminished quality duplicates
- CCTV and other monitoring applications

The package includes the following items:

- **VM-5DS** *Video Audio Distribution Amplifier / Scaler*
- Power cord
- 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]

2.1 Quick Start

This quick start chart summarizes the basic setup and operation:

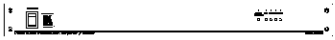
1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

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

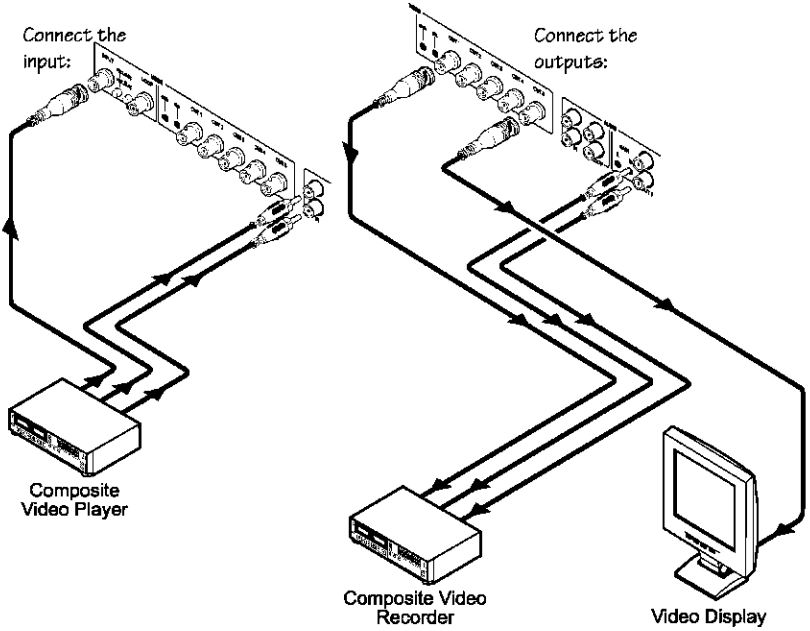
3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

Step 1: Mount the machine - see section 5

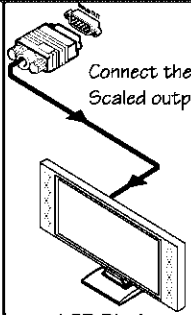
Mount the machine in a rack or stick the 4 rubber feet to the underside



Step 2: Connect the VM-5DS - see section 6



Step 3: Connect the Scaled Output - see section 6



Step 4: Turn the power ON

Step 5: Set the Resolution - see section 4

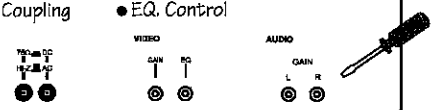
Set the Scaler resolution via the SCALER RESOLUTION button. Choose one of the following:

VGA (640x480)
SVGA (800x600)
XGA (1024x768)
WXGA (1366x768)

Step 6: Set/adjust ... - see section 4

If required, you can adjust:

- Termination
- Video Gain
- Audio Gain
- Coupling
- EQ. Control



3 Overview

The **VM-5DS** is a distribution amplifier for composite video and stereo audio signals. It will take one composite video and stereo audio input, provide correct buffering and isolation and distributes the signal to five identical video and audio outputs plus one scaled output.

In particular, the **VM-5DS** features:

- Has a high bandwidth of 360MHz, ensuring transparent performance even in the most critical applications
- Scaled graphics output resolutions: VGA (640x480), SVGA (800x600), XGA (1024x768), or WXGA (1366x768)
- Looping inputs, buttons for termination and video AC/DC coupling
- Audio level control (independently for the left and right levels)
- Video level (gain) and EQ. (Peaking) control
- Is housed in a 19" 1U rack-mountable enclosure and is fed from a 90-240 VAC universal switching power supply

To achieve the best performance:

- Connect 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)
- Avoid interference from neighboring electrical appliances and position your **VM-5DS** away from moisture, excessive sunlight and dust

4 Your VM-5DS Video Audio Distribution Amplifier / Scaler

This section defines the front and rear panels of the **VM-5DS** *Video Audio Distribution Amplifier / Scaler*:

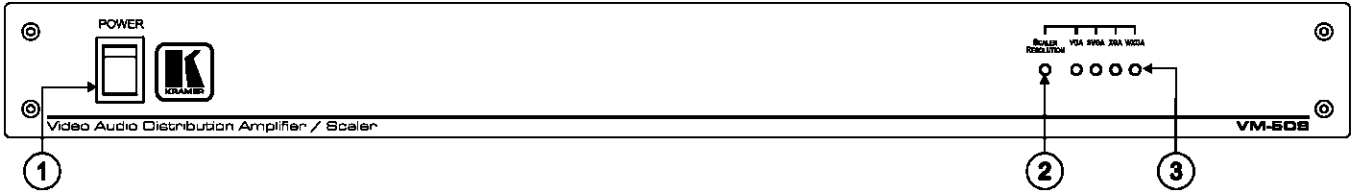


Figure 1: VM-5DS Video Audio Distribution Amplifier / Scaler Front Panel

Table 1: VM-5DS Video Audio Distribution Amplifier / Scaler Front Panel Features

#	Feature		Function
1	POWER Sw tch		I um nated sw tch for turn ng the un t ON or OFF
2	SCALER RESOLUTION	Button	Press to se ect the SCALER OUT reso ut on: VGA SVGA XGA or WXGA
3	SCALER RESOLUTION	LEDs	L ght the spec f c reso ut on se ected v a the SCALER RESOLUTION button: VGA (640x480) SVGA (800x600) XGA (1024x768) or WXGA (1366x768)

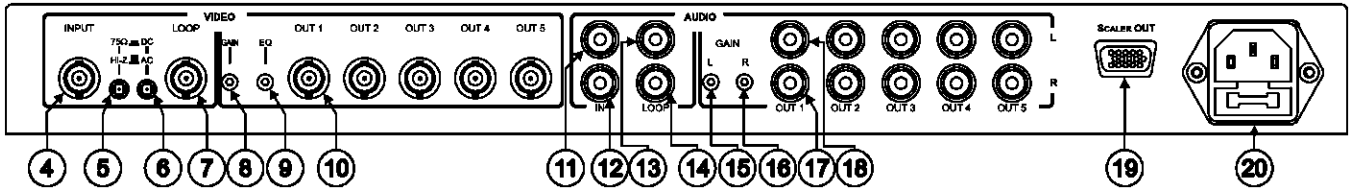


Figure 2: VM-5DS Video Audio Distribution Amplifier / Scaler Rear Panel

Table 2: VM-5DS Video Audio Distribution Amplifier / Scaler Rear Panel Features

#	Feature		Function
4	VIDEO	INPUT BNC Connector	Connects to the compos te v deo source
5		TERM IN Button	Press to term nate w th 75Ω or re ease to H -Z for oop ng
6		Coup ng Button	Press for DC or re ease for AC
7		LOOP BNC Connector	Connect to an add t ona un t
8		*GAIN* Tr mmer	Adjusts[1] the v deo eve
9		*EQ* Tr mmer	Adjusts[1] the v deo EQ (equa zat on) compensat on of outputs
10		OUTPUT BNC Connectors	Connects to the compos te v deo acceptors (from 1 to 5)
11	AUDIO	IN L RCA Connectors	Connect to the aud o source
12		IN R RCA Connectors	Connect to the aud o source
13		LOOP L RCA Connectors	Connect to an add t ona un t
14		LOOP R RCA Connectors	Connect to an add t ona un t
15		GAIN L Tr mmer	Adjusts[1] the eft aud o output s gna eve
16		GAIN R Tr mmer	Adjusts[1] the r ght aud o output s gna eve
17		OUT R RCA Connectors	Connect to the aud o acceptors (from 1 to 5)
18		OUT L RCA Connectors	Connect to the aud o acceptors (from 1 to 5)
19	SCALER OUT HD15 Connector		Connects to the v deo acceptor that d sp ays the sca ed output
20	Power Connector w th FUSE		AC connector for supp y ng power to the un t

1 Insert a screwdriver into the hole and carefully rotate it, to trim the level

5 Installing on a Rack

This section describes what to do before installing on a rack and how to rack mount.

Before Installing on a Rack

Before installing on a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5 to +45 Deg. Centigrade
Operating humidity range	5 to 65% RHL, non-condensing
Storage temperature range	-20 to +70 Deg. Centigrade
Storage humidity range	5 to 95% RHL, non-condensing

CAUTION!!

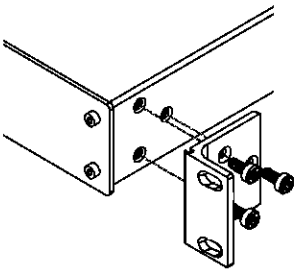
When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

- **In some models, the front panel may feature built-in rack ears**
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

6 Connecting the VM-5DS

To connect the **VM-5DS**, as the example in Figure 3 shows, do the following[1]:

1. Connect a composite video source (for example, a composite video player) to the VIDEO INPUT BNC connector and the AUDIO IN R and L RCA connectors.
2. Connect the VIDEO OUT 1 BNC connector and the AUDIO OUT 1 R and L RCA connectors to a composite video acceptor (for example, a composite video recorder).
3. Connect the VIDEO OUT 5 BNC connector to a composite video acceptor (for example, a video display).
4. Connect the SCALER OUT HD15 connector to a VGA acceptor (for example, an LCD display).
5. Connect the power cord to the mains electricity.

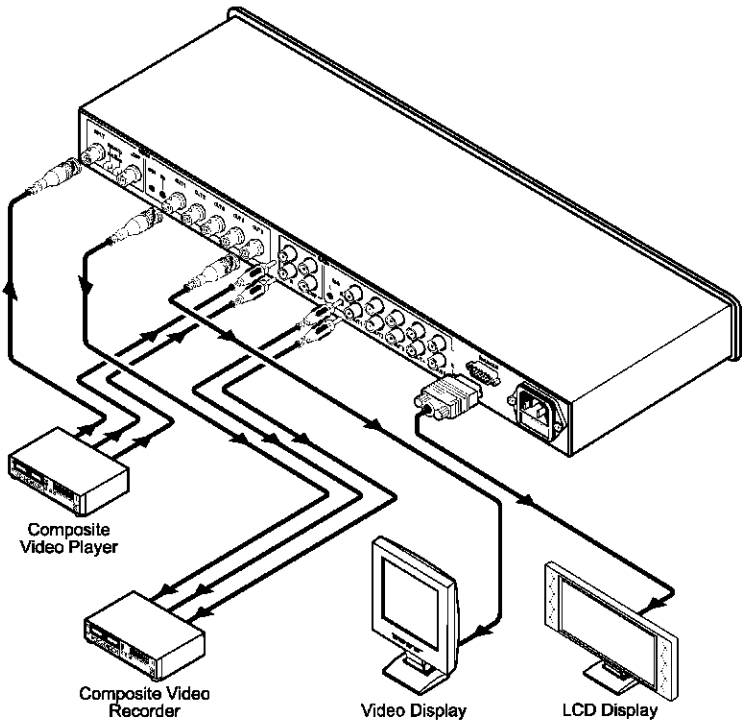


Figure 3: Connecting the VM-5DS Video Audio Distribution Amplifier / Scaler

1 Switch OFF the power on each device before connecting it to your VM-5DS. After connecting your VM-5DS, switch on its power and then switch on the power on each device

7 Technical Specifications

Table 3 includes the technical specifications[1] of the **VM-5DS**:

Table 3: Technical Specifications of the VM-5DS

INPUTS:	1 video composite, looping, 1Vpp/75Ω on BNC connectors with termination switch 1 audio stereo looping, +4dBm/50kΩ on RCA connectors	
OUTPUTS:	5 video composite 1 Vpp/75Ω on BNC connectors 5 audio stereo, +4dBm/50Ω, 27 Vpp max. on RCA connectors 1 VGA through WXGA on an HD15F connector	
SCALED OUTPUT RESOLUTIONS:	VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), WXGA (1366 x 768)	
MAX. VIDEO OUTPUT LEVEL:	2.2 Vpp	
BANDWIDTH (-3dB):	VIDEO: 360MHz	AUDIO: 60kHz
DIFF. GAIN:	0.03%	
DIFF. PHASE:	0.06 Deg.	
K-FACTOR:	0.05%	
S/N RATIO:	VIDEO: 76dB	AUDIO: 0.004%
CONTROLS:	Video gain: -1 to +1.8dB, EQ.: 0 to +2.5dB, audio: 0.2 to +6dB	
COUPLING:	VIDEO: DC/AC selectable	AUDIO: AC
AUDIO THD + NOISE:	0.021% (1V, 1kHz.)	
POWER SOURCE:	100-240 VAC, 50/60Hz 15 VA	
DIMENSIONS:	19-inch (W), 7-inch (D) 1U (H) rack mountable	
WEIGHT:	1.94 kg (4.3 lbs.) approx.	
ACCESSORIES:	Power cord, rack ears	

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 seven 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, 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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P/N: 2900-000258 REV 1