



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VP-481**  
DVI to 3G HD-SDI Scaler

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P/N: 2900-300008 Rev 3

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## VP-481 Quick Start Guide

This page guides you through a basic installation and first-time use of your **VP-481**. For more detailed information, see the **VP-481** user manual. You can download the latest manual at <http://www.kramerelectronics.com>.

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

- The **VP-481** 1:2 DVI to 3G HD-SDI
- 1 power adapter (5V DC input)
- 4 rubber feet
- 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.

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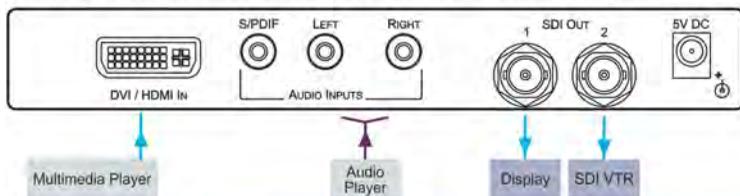
### Step 2: Install the VP-481

Mount the machine in a rack (using the RK-T2B rack adapter) or place on a table.

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### Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VP-481**.



For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the VP-481.

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### Step 4: Connect the power

Connect the 5V DC power adapter to the **VP-481** and plug the adapter into the mains electricity. Switch on the power to each device.



### Step 5: Operate the VP-481

Set the parameters using the front panel buttons and the On-screen Display (OSD):

CONTRAST  
BRIGHTNESS  
FINETUNE  
COLOR  
SIZE  
OUTPUT  
AUDIO  
OSD  
FACTORY RESET  
INFORMATION  
EXIT



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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: 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 **VP-481** *DVI to 3G HD-SDI Scaler*, which is ideal for the following typical applications:

- Broadcast studios for scaling and conversion from DVI sources
- Scaling to 3G HD-SDI for rental and staging events
- Format conversion and scaling

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## 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



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 **VP-481** 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

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## 3 Overview

The Kramer **VP-481** *DVI to 3G HD-SDI Scaler* is a high-performance digital scaler for signals up to 3G HD-SDI. It up-scales and down-scales DVI/HDMI signals up to WUXGA and 1080p resolutions to SDI, HD-SDI and 3G HD-SDI. The following input resolutions are supported:

- PC: SVGA, XGA, 1360x768, WXGA, SXGA, 1440x900, SXGA+, WSXGA+, UXGA, WUXGA, 720x576 @50, 720x480 (NTSC), 1280x720 @50/60 (HD 720), 1920x1080 @50/60 (HD 1080)
- SDTV: 480p and 576p
- HDTV: 720p @50/60Hz, 1080i @50/60Hz and 1080p @50/60Hz

The **VP-481** also features:

- A maximum data rate of 3Gbps
- Multi-standard operation: SDI (SMPTE 259M), HD-SDI (SMPTE 292M) and 3G HD-SDI (SMPTE 424M)
- An OSD (On-screen Display) accessible via the front panel buttons for easy setup and adjustment
- A built-in ProcAmp for convenient signal adjustment
- A non-volatile memory that retains the last settings used
- A freeze button
- A DVI/HDMI video input
- Two SDI outputs (up to 3G HD-SDI)
- S/PDIF digital and unbalanced stereo audio inputs
- An external 5V DC source, making it suitable for field operation
- Operation directly via the front panel push buttons and the OSD

## 4 Defining the VP-481 DVI to 3G HD-SDI Scaler

Figure 1 defines the front panel of the **VP-481**.

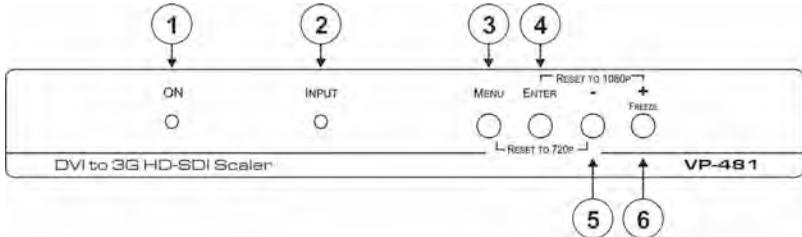


Figure 1: VP-481 DVI to 3G HD-SDI Scaler Front Panel

VP-481 Front Panel Features		
#	Feature	Function
1	<i>ON</i> LED	Lights green when the unit is powered on
2	<i>INPUT</i> LED	Lights blue when a DVI/HDMI signal is detected on the input
3	<i>MENU</i> Button	Press to display the OSD (On-screen Display) menu. When the OSD is not displayed, press together with the – button to set the output resolution to 720p (1280x720)
4	<i>ENTER</i> Button	In the OSD, press to select the highlighted menu item. When the OSD is not displayed, press together with the + button to set the output resolution to 1080p (1920x1080)
5	– Button	In the OSD, press to step up through the options or to decrement the parameter value
6	+ / <i>FREEZE</i> Button	In the OSD, press to step down forward through the options or to increment the parameter value. When the OSD is not displayed, press to freeze the display

Figure 2 defines the rear panel of the **VP-481**.

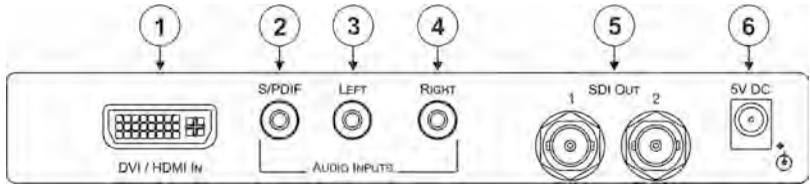


Figure 2: VP-481 DVI to 3G HD-SDI Scaler Rear Panel

VP-481 Rear Panel Features		
#	Feature	Function
1	DVI/HDMI Connector	Connect to the DVI/HDMI source The HDMI source must not have HDCP encryption. When copy protection is detected, the output of the device is disabled
2	AUDIO INPUTS Audio Input Connectors	S/PDIF RCA Connector
3		LEFT Channel Unbalanced Stereo Audio RCA Connector
4		RIGHT Channel Unbalanced Stereo Audio RCA Connector
5	SDI OUT 1 and 2 BNC Connectors	Connect to the SDI acceptors. The signal is re-clocked and equalized
6	5V DC	Connect to the +5V DC power adapter, center pin positive

## 5 Connecting the VP-481 DVI to 3G HD-SDI Scaler



Always switch off the power to each device before connecting it to your **VP-481**. After connecting your **VP-481**, connect its power and then switch on the power to each device.

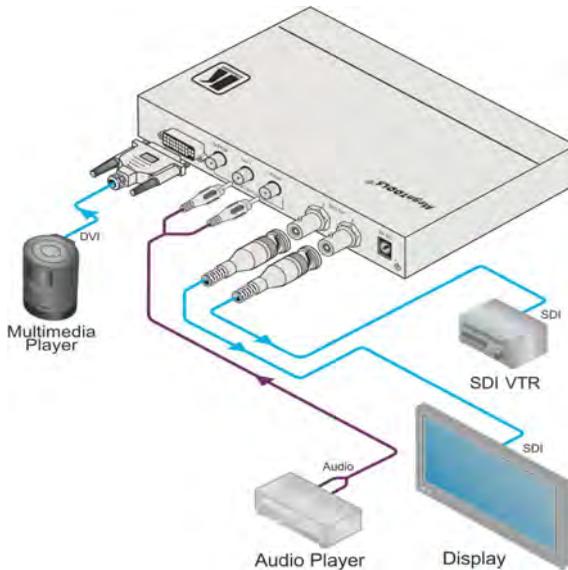


Figure 3: Connecting the VP-481 DVI to 3G HD-SDI Scaler

To connect the **VP-481** as illustrated in the example in [Figure 3](#):

1. Connect the DVI/HDMI source (for example, a multimedia player) to the DVI/HDMI IN DVI connector.
2. Connect the unbalanced stereo audio source (for example, an audio player) to the AUDIO INPUTS LEFT and RIGHT RCA connectors.
3. Connect the SDI OUT BNC connectors to the SDI acceptors (for example, a display and an SDI VTR).
4. Connect the power adapter to the 5V DC power socket and to the mains electricity (not shown in [Figure 3](#)).

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## 6 Operating the VP-481 DVI to 3G HD-SDI Scaler

The **VP-481** is operated directly via the front panel buttons and via the OSD menu.

### 6.1 Using the Front Panel Buttons

During normal operation (without the OSD), the front panel buttons perform in the following manner:

- **MENU**: Displays the OSD Main Menu (see [Section 6.2](#)). Press a second time to close the OSD
- **FREEZE**: Freezes the display. Press a second time to unfreeze the display
- **MENU** and **-**: Press together to set the output to 720p (1280x720)
- **ENTER** and **FREEZE**: Press together to set the output to 1080p (1920x1080)

### 6.2 Using the OSD

The OSD is used to set a variety of parameters.

When using the OSD, the front panel buttons operate in the following manner:

- **MENU**: Opens the OSD main menu (see [Section 6.2](#)). Press a second time to close the OSD
- **ENTER**: Selects the highlighted menu item or parameter
- **-**: Steps up through the menu list or decrements the parameter value
- **+**: Steps down through the menu list or increments the parameter value

**Note:** After a preset period with no button activity, the OSD menu times-out automatically (see [Section 6.2.4](#)).

## Example of Setting a Parameter

### To set the blue color value of the display output to 42:

1. From normal operation, press MENU.  
The OSD main menu appears on the screen.
2. Press the + or – button to highlight COLOR.  
COLOR changes to green.
3. Press ENTER.  
The Color submenu is displayed.
4. Press the + or – button to highlight BLUE.  
BLUE changes to green.
5. Press ENTER.  
The BLUE parameter changes to blue.
6. Press the + or – button to change the value to 42.
7. Press ENTER to set the value.  
BLUE is highlighted in green.
8. To exit to normal operation, press MENU.

## 6.2.1 The Main Menu

VP-481 Main Menu Parameters and Functions				
Parameter		Function	Value Range	Factory Default
CONTRAST		Sets the output contrast	0-100	50
BRIGHTNESS		Sets the output brightness	0-100	45
FINETUNE	COLOR FILTER	Set the color filter on or off for best results in applications where there is colored tinting within detailed picture areas (for example, text)	ON, OFF	OFF
COLOR		Sets the output color parameters (see <a href="#">Section 6.2.2</a> )		

VP-481 Main Menu Parameters and Functions			
Parameter	Function	Value Range	Factory Default
SIZE	Sets the output size/aspect ratio	FULL, PANSKAN, LETTERBOX, UNDERSCAN, OVERSCAN, BEST FIT	FULL
OUTPUT	Sets the output resolution	720p @60 1080p SF30/29/25 1080p @30/29/25/24/23 1080p @59 1080i @59 720p @59 480i @59 576i 1080p @50 1080i @50 720p @50 1080p @60 1080i @60	720p @60
AUDIO	Sets the output audio parameters (see <a href="#">Section 6.2.3</a> )		
OSD	Sets the on-screen display parameters (see <a href="#">Section 6.2.4</a> )		
FACTORY RESET	Resets all parameters to factory defaults		
INFORMATION	Displays current source, input resolution, output resolution and firmware version		
AUTO SYNC OFF	When on, de-activates the output after a few minutes if no input is present. For example, when the output is connected to a projector, the projector shuts down automatically when there is no input	ON, OFF	OFF
EXIT	Exits the Main menu		

## 6.2.2 The Color Submenu

The Color submenu sets the display output color parameters.

VP-481 Color Submenu Parameters and Functions			
Parameter	Function	Value Range	Factory Default
RED	Sets the output red value	0-100	47
GREEN	Sets the output green value	0-100	47
BLUE	Sets the output blue value	0-100	47
EXIT	Exits the Color submenu		

### 6.2.3 The Audio Submenu

The Audio submenu sets the audio output source, delay and muting.

VP-481 Audio Submenu Parameters and Functions			
Parameter	Function	Value Range	Factory Default
SOURCE	Sets the source of the audio signal	HDMI, L/R, COAXIAL	HDMI
DELAY	Sets the audio signal delay	40ms, 110ms, 150ms, OFF	OFF
SOUND	Turns the sound on or off	ON, MUTE	ON
EXIT	Exits the Display menu		

### 6.2.4 The OSD Submenu

The OSD submenu sets the on-screen display horizontal/vertical position, timer and background characteristics.

VP-481 OSD Submenu Parameters and Functions			
Parameter	Function	Value Range	Factory Default
H-POSITION	Sets the horizontal position of the OSD	0-100	10
V-POSITION	Sets the vertical position of the OSD	0-100	90
TIMER	Sets the time that the OSD is displayed before it times-out	5-100	10
BACKGROUND	Sets the transparency of the OSD background	0, 13, 25, 38, 50, 63, 75, 88, 100	63
DISPLAY	Sets the input resolution notification pop-up	INFO, OFF, ON	INFO
EXIT	Exits the Display menu		

## 7 Technical Specifications

INPUTS:	VIDEO:	1 DVI/HDMI on a DVI-I connector
	AUDIO:	1 S/PDIF digital audio on an RCA connector
		1 Unbalanced stereo audio on 2 RCA connectors
OUTPUTS:	VIDEO:	2 SDI/HD-SDI/3G HD-SDI on BNC connectors
INPUT RESOLUTIONS:	See the document "Kramer Scalers Input Output Resolutions" available for download from <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>	
AUDIO INPUT SAMPLE RATE:	48kHz	
OUTPUT RESOLUTIONS:	720p, 1080p SF30/29/25, 1080p @30/29/25/24/23, 1080p @59, 1080i @59, 720p @59, 480i @59, 576i, 1080p @50, 1080i @50, 720p @50, 1080p, 1080i All resolutions are outputted @60Hz, except where noted	
OUTPUT SIZE:	Full, Panscan, Letterbox, Underscan, Overscan, Best Fit	
PROCESSING DELAY:	20ms	
COMPLIANCE WITH HDCP STANDARD:	Supports HDCP	
CONTROLS:	Menu, OSD and Freeze front panel buttons	
POWER SOURCE:	5V DC, 1.5A	
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)	
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)	
HUMIDITY:	10% to 90%, RHL non-condensing	
DIMENSIONS:	18.8cm x 11.4cm x 2.5cm (7.4" x 4.5" x 1") W, D, H	
WEIGHT:	0.47kg (1.04lbs) approx.	
ACCESSORIES:	Power supply	
OPTIONS:	RK-T2B 19" rack adapter	
Specifications are subject to change without notice at <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>		

## LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

### What is Covered

This limited warranty covers defects in materials and workmanship in this product.

### What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

### What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

### What Kramer Electronics will not do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

### How to Obtain a Remedy under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

### Limitation on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

### Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW.

IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

### Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, please visit our Web site at

[www.kramerelectronics.com](http://www.kramerelectronics.com) or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.



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](http://www.kramerelectronics.com)

E-mail: [info@kramerel.com](mailto:info@kramerel.com)



**SAFETY WARNING**

Disconnect the unit from the power supply before opening and servicing