

VGA Converter / Scaler
User Manual

DVI-3221a

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1.0 INTRODUCTION

Thank you for purchasing this VGA Converter / Scaler from DVIGear, Inc.. The DVI-3221a is designed to convert between a wide variety of PC resolutions, and many HDTV resolutions. Our professional conversion and scaling products have been serving the industry for several years. In addition to VGA Converter / Scaler, DVIGear, Inc. offers a full line of high quality Scan Converters, Standards Converters, DV-to-Analog Converters, Switchers and Distribution Amplifiers.

1.1 Features

- Ultra Compact, High Performance Units
- Convert PC-to-PC, PC-to-HD, HD-to-PC or HD-to-HD
- Convert RGBHV to/from YPbPr
- PC Resolutions to 1280x1024
- HDTV Scan Resolutions
- 48MB Frame Memory
- Integral Picture Adjustments
- On Screen Display for Setup and Adjustment
- Rugged Metal Case
- Locking DC Power Connector for Security

1.2 Getting the Best Results

There are many factors affecting the quality of results when scaling signals. Some basic precautions will ensure the best possible performance from your converter/scaler.

- **Output display device** – The quality of the output signal will depend largely upon the type and quality of display device used. For instance, some video projectors just look better than others.
- **Using Native Resolution** – It is always best to set the output resolution of the scaler to the native resolution and refresh rate of the display device. This allows our scaler to do most of the work, which usually results in a superior picture.
- **Distance between the VGA Converter / Scaler and the display device** – This plays a major role in the final result. Long distances are possible, but special measures should be taken in order to avoid cable losses. These include using high quality (coax-type) cables or adding line amplifiers.
- **Output connection cables** – Low quality cables are susceptible to interference. They degrade signal quality due to poor matching and cause elevated noise levels. Therefore, cables should be of the best quality. Coax-type computer cables are recommended because of their superior internal shielding characteristics.
- **Interference from nearby electrical devices** – These can have an adverse effect on signal quality. For example, an older computer monitor often emits very high electromagnetic fields that can interfere with the performance of video equipment in its proximity.

2.0

SPECIFICATIONS

Input Format (Note 1)	RGBHV, YPbPr, YCbCr (Note 1)
Input Signal Levels	RGB @ 0.7V p-p, 75Ω. H&V Sync @ 3-5V p-p, TTL Y @ 1V p-p, 75Ω. Pb, Cb, Pr, Cr @ 0.7V p-p, 75Ω
Output Format	RGBHV, YPbPr
Output Signal Levels	RGB @ 0.7V p-p, 75Ω. H&V Sync @ 3-5V p-p, TTL Y @ 1V p-p, 75Ω. Pb, Pr @ 0.7V p-p, 75Ω
Input/Output Connector Type	HD15 Female
Control	Front Panel Buttons
Information Display	On Screen Display
Video Adjustments	Brightness, Contrast, Color, R-G-B Levels
Weight	10 oz. (280 grams)
Dimensions – HxWxD	1.2" x 3" x 5.5" (30x75x140mm)
Power Source	115VAC to 12VDC@800mA In-Plug Switching Adapter

Input Signal Specifications

PC Resolutions		Vert Rate	Format	Scan Type
VGA	640x480	60, 72, 75, 85 Hz	RGBHV	Progressive
VESA85	640x400	85Hz	RGBHV	Progressive
VGA70	720x400	70Hz	RGBHV	Progressive
SVGA	800x600	60, 72, 75, 85 Hz	RGBHV	Progressive
XGA	1024x768	60, 70, 75, 85 Hz	RGBHV	Progressive
Mac	1152x864	70, 75 Hz	RGBHV	Progressive
WXGA	1280x768	60Hz	RGBHV	Progressive
1280A	1280x960	60Hz	RGBHV	Progressive
SXGA	1280x1024	60, 75 Hz	RGBHV	Progressive
HDTV Resolutions		Vert Rate	Format	Scan Type
480p	720x480	60Hz	YPbPr, RGBHV	Progressive
480i	720x480	60Hz	YCbCr, RGBHV	Interlace
576p	720x576	50Hz	YPbPr, RGBHV	Progressive
576i	720x576	50Hz	YCbCr, RGBHV	Interlace
720p	1280x720	60Hz	YPbPr, RGBHV	Progressive
1080i	1920x1080	60Hz	YPbPr, RGBHV	Interlaced

Output Signal Specifications

PC Resolutions		Vert Rate	Format	Scan Type
VGA	640x480	60, 72, 75, 85 Hz	RGBHV	Progressive
VESA85	640x400	85Hz	RGBHV	Progressive
VGA70	720x400	70Hz	RGBHV	Progressive
SVGA	800x600	60, 72, 75, 85 Hz	RGBHV	Progressive
XGA	1024x768	60, 70, 75, 85 Hz	RGBHV	Progressive
Mac	1152x864	70, 75 Hz	RGBHV	Progressive
WXGA	1280x768	60Hz	RGBHV	Progressive
1280A	1280x960	60Hz	RGBHV	Progressive
SXGA	1280x1024	60, 75 Hz	RGBHV	Progressive
HDTV Resolutions		Vert Rate	Format	Scan Type
480p	720x480	60Hz	YPbPr, RGBHV	Progressive
576p	720x576	60Hz	YPbPr, RGBHV	Progressive
720p	1280x720	60Hz	YPbPr, RGBHV	Progressive
1080i/540p (Note 3)	1920x1080	60Hz	YPbPr, RGBHV	Pseudo Inter-laced

Note 1 - The 1080i Output is actually a doubled 540p signal. It will appear as 1080i on most displays, however, it is not a true 1080i signal format.

3.0 CHECKING THE PACKAGE CONTENTS

The following items are contained in shipping carton:

- Scaler Unit
- AC/DC Power Adapter
- HD-15 to 3 RCA Cable
- HD-15 to HD15 Cable
- User Manual

Note - Please retain the original packing material should the need arise to return the unit.

4.0 CONNECTING THE HARDWARE

The first step is to connect a video source to the input of the Scaler and to connect its output to a display device. Below is a drawing of the unit.



4.1 Connecting the Input

The DVI-3221a VGA Converter / Scaler can accept RGBHV, YPbPr and YCbCr inputs. When a PC (RGBHV) source is used, select an HD-15 to HD-15 Cable to connect the source device to the Scaler Input. When an HDTV (YPbPr or YCbCr) source is used, select an HD-15 to 3-RCA Cable to connect the source device to the Scaler Input. The Scaler will automatically detect the input signal resolution and format.

4.2 Connecting the Output

The DVI-3221a VGA Converter / Scaler can output RGBHV or YPbPr formats. When a PC (RGBHV) output is used, select an HD-15 to HD-15 Cable to connect the Scaler Output to the destination device. When an HDTV (YPbPr) output is used, select an HD-15 to 3-RCA Cable to connect the Scaler Output to the destination device. .

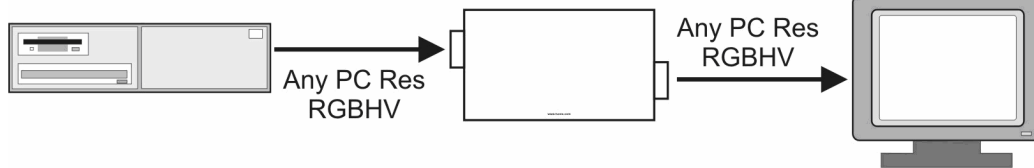
4.3 Connecting Power to the Unit

The VGA Converter / Scaler is shipped with an In-Plug Power Adapter to convert 115VAC@50-60Hz to 12VDC (220VAC Input is optionally available). Connect the DC Output Cord from the Power Adapter to the back of the unit and then plug the Power Adapter into an AC Receptacle. When the unit's front panel Power Switch is turned On, the Power LED indicator will illuminate.

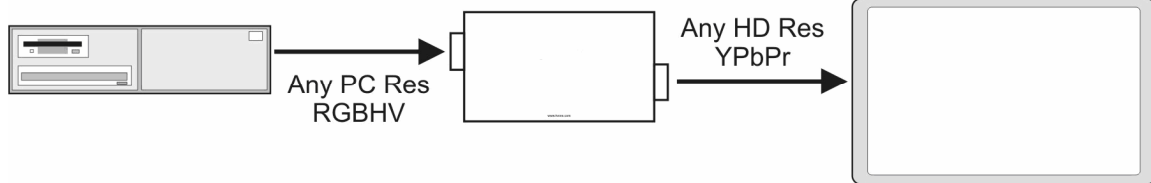
5.0 TYPICAL USES

The DVI-3221a VGA Converter / Scaler is capable of many types of signal conversion. Below are some common examples of tasks that are within the scope of their capability, depending upon which model is used.

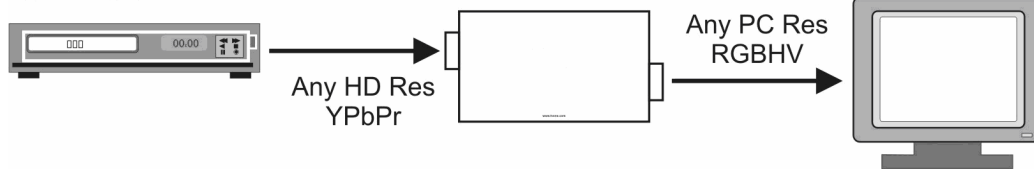
PC to PC



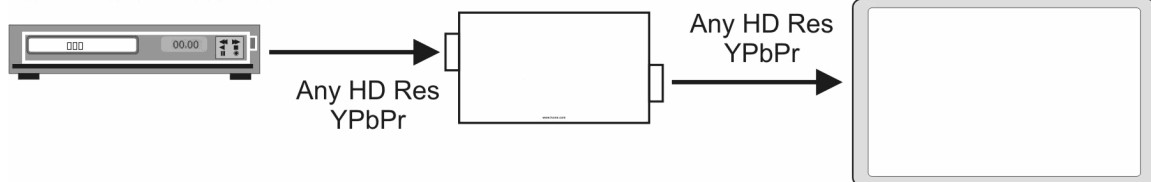
PC to HDTV*



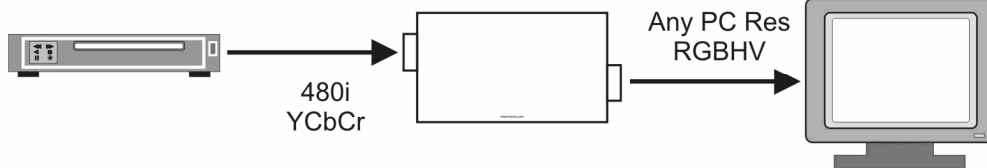
HD VCR to PC*



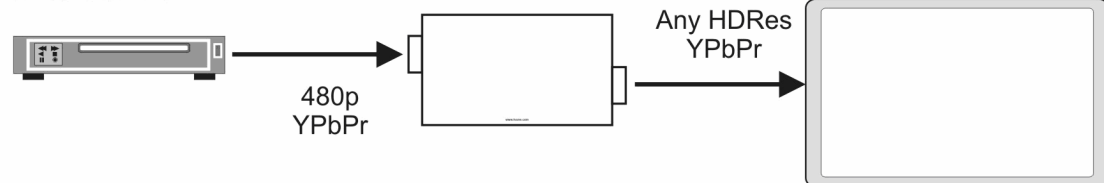
HD VCR to HDTV*



DVD to PC*

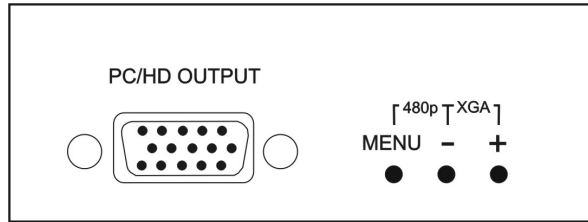


DVD to HDTV*



6.0 CONTROLLING THE SCALER

The Scaler is controlled via three buttons and status is indicated by OSD.



- **Menu Button:** This Button displays the Menu Options via the On Screen Display on the display device connected to the output. 6.1 thru 6.7 detail the sub-menus.
- **+ and - Buttons:** These Buttons allow navigation within the Menu and adjustments of the parameters available.
- **XGA Reset:** Simultaneously depressing the – and + buttons returns settings to factory defaults and sets the output to XGA.
- **480p Reset:** Simultaneously depressing the MENU and - buttons returns settings to factory defaults and sets the output to 480p

6.1 Input Setup

When this is selected, a sub-menu of clock and phase adjustments will appear:

Clock	<input type="text" value="32"/>	32/64
Phase	<input type="text" value="22"/>	22/32

Use + and – Buttons to choose the parameter you want to adjust and then press the Menu (Enter) to highlight your selection. Once a parameter is highlighted, use + and - Buttons to increase or decrease the value of the setting. Press Menu again to leave the setting. Move the arrow to Exit, then press Menu/Enter to Exit.

6.2 Output Setup

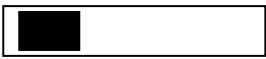





When this is selected, the following Output Resolution sub-menu will appear:

PC Resolution		HDTV Resolution	
SXGA	1280x768@60/75Hz	720p-RGB	1280x720@60Hz
1280A	1280x960@60Hz	576p-RGB	720x576@60Hz
XGA	1024x768@60/70/75/85Hz	480p-RGB	720x480@60Hz
WXGA	1280x768@60Hz	1080i-RGB	1920x1080@60Hz
SVGA	800x600@60/72/75/85Hz	720p-YPbPr	1280x720@60Hz
VGA	640x480@60/72/75/85Hz	576p-YPbPr	720x576@60Hz
VGA70	720x400@70Hz	480p-YPbPr	720x480@60Hz
VESA85	640x400@85Hz	1080i-YPbPr	1920x1080@60Hz
	1152x864@70/75Hz	(Pseudo Interlace -	See Note 1 on Page 2)

Use the + and – Buttons to choose the desired PC or HDTV output resolution from the available selections in the sub-menu.

6.3 Operation Controls and Functions


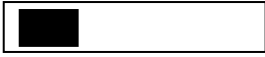
When this is selected, the following Picture Adjust sub-menu will appear:

Contrast		047
Bright		102
Color		064
Red		128
Green		128
Blue		128
Reset		
Exit		

The adjustment range for Contrast, Brightness, Red, Green and Blue is 0-255 for each. The factory default preset values are listed to the right of the adjustment box pictured above. Use the + and – Buttons to adjust the value of the selected parameter. Select Reset to set all adjustments to the factory default values.

6.4 HV Adjust

When this is selected, the following Horizontal and Vertical Position Adjust sub-menu will appear. Use the + and – Buttons for the best H and V Position of the picture.

H-position		184
V-position		32

6.5 OSD Adjust

When this is selected, you can adjust the Horizontal and Vertical Position of the On Screen Display within the video image on the screen.

6.6 System Information

When this is selected, the OSD shows the Scaler's current Input and Output Resolution and Vertical Refresh Rate, such as:

INPUT: VGA 60
OUTPUT: XGA 75

6.7 Auto Adjust

When this is selected, the Scaler will automatically adjust all the parameters to the factory default values. The factory default of the Output Resolution is XGA (1024x768) @ 60Hz.

Simultaneously pressing and holding the + and – Buttons will also return the unit to the factory default settings and the output to XGA@60Hz.

Note: The Scaler has a “last setting memory”, so the current settings will be retained when the power is turned off and the unit will return to those settings when the power is turned back on.

7.0 TROUBLESHOOTING

Other than checking for faulty cables, the only common problem would be choosing a wrong Output Setting. Make sure the display is capable of handling the resolution and refresh rate selected and make sure the output format selected (RGB or YPbPr) for the type of cable being used at the output. If a problem persists, please consult your Dealer or contact DVIGear, Inc. Technical Support directly by phone at 888-463-9927 (US-Canada toll free) or 770-421-6699 or by email at support@dvigear.com.

8.0 LIMITED WARRANTY

DVIGear, Inc. warrants the original purchaser that the equipment it sells will be free from defects in materials and workmanship for a period of one year from the date of purchase. Should this product, in DVIGear, Inc.'s opinion, prove defective within this warranty period, DVIGear, Inc., at its option, will repair or replace this product without charge. Any defective parts replaced become the property of DVIGear, Inc.. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from DVIGear, Inc. and return the product to a location designated by DVIGear, Inc., freight prepaid. The repaired product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to one year from the date of purchase. DVIGear, Inc. assumes no liability to end-users for any loss of use, revenue or profit.

DVIGear, Inc. makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of DVIGear, Inc. with respect to any defective products will be limited to the repair or replacement of such products. In no event shall DVIGear, Inc. be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

9.0 REGULATORY COMPLIANCE

The VGA Converter / Scaler has been tested for compliance with: FCC Class B and CE
The Power Adapter has been tested for compliance with: UL, CSA and CE



Your Digital Connectivity Experts

Toll Free: 888.463.9927
Phone: 770.421.6699
Fax: 770.234.4207

1059 Triad Court
Suite 8
Marietta, GA 30062-2258

www.dvigear.com