

User Guide

VGA to DVI Scaler/Converter

DVI-3210a



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1.0 INTRODUCTION

Thank you for purchasing this VGA to DVI Converter/Scaler from DVI Gear. The model DVI-3210a is designed to convert analog RGBHV or Component Video (YPbPr or YCbCr) input signals to DVI-I (digital + analog) output signals. Our professional video conversion products have been serving the industry for several years. DVI Gear offers a full line of high quality Video Scalers, Scan Converters, Analog-Digital Converters and DVI/HDMI Converters, as well as Signal Switchers and Distribution Amplifiers.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. DVI Gear cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

DVI Gear reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

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1.2 Features

- Ultra-Compact, high performance Converter with advanced scaling functions
- Converts analog RGBHV or Component Video (YPbPr or YCbCr) input signals to DVI-I (digital + analog) output signals
- The output signal may be either DVI-A (analog) or DVI-D (digital) 29-pin DVI-I connector
- Automatic detection of input resolution, user selection of output resolution and refresh rate
- 48 MByte frame memory; frame rate conversion from 50-85 Hz
- Output Picture Adjustments for: Brightness, Contrast, Color and H/V Position
- On-Screen Display for all setup adjustments
- Rugged Metal Case
- Locking DC power connector for added security



1.3 Getting the Best Results

There are many factors affecting the quality of results when scaling video signals. Some basic precautions will ensure the best possible performance from this product.

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 this allows the unit's scaling engine to do most of the work, which usually results in a superior picture.

Distance between the Video 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) VGA cables and premium DVI cables such as DVI Gear's Super High Resolution™ cables. Line amplifiers or repeaters may also be necessary.

Output Connection Cables – Low quality cables are susceptible to interference. They degrade signal quality due to poor impedance 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 Signal Specifications:

| | |
|------------------------------|---|
| Input Format | Analog RGBHV, YPbPr or YCbCr |
| Input Signal | RGBHV: 0.7 V p-p, 75Ω , H/V: 3 to 5 p-p TTL, Y: 1 V p-p 75Ω, Pb/Cb, Pr/Cr: 0.7 V p-p 75Ω |
| Output Format | Single-Link DVI-I, RGB serial data bit stream, or Analog RGB,HV |
| Output Signal | DVI-A (analog) or DVI-D (digital) |
| Input Connector Type | HD15 Female VGA Connector |
| Output Connector Type | 29-pin Female DVI-I Connector |
| Control | Front Panel Buttons |
| Information Display | On-Screen Display |
| Video Adjustments | Brightness, Contrast, Color, H and V Position |
| Weight | 0.66 lbs / 300 grams (net weight) 2.5 lbs. / 1.1 KG (shipping) |
| Dimensions – HxWxD | 1.2" x 6.1" x 3.0" (31 x 155 x 77 mm) |
| Power Source | External AC Power Adapter: 100~240VAC@50-60Hz to 5VDC, 2.0A |

Output Signal Specifications:

| PC Resolutions | | Vertical Rate | Format | Scan Type |
|------------------|-----------|----------------|--------------|----------------------------------|
| VGA | 640x480 | 60,72,75,85 Hz | RGBHV | Progressive |
| VESA85 | 640x480 | 85 Hz | RGBHV | Progressive |
| VGA70 | 720x400 | 70 Hz | 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 | 60 Hz | RGBHV | Progressive |
| 1280A | 1280x960 | 60 Hz | RGBHV | Progressive |
| SXGA | 1280x1024 | 60,75 Hz | RGBHV | Progressive |
| HDTV Resolutions | | Vertical Rate | Format | Scan Type |
| 480p | 720x480 | 60Hz | YPbPr, RGBHV | Progressive |
| 576p | 720x576 | 50Hz | YPbPr, RGBHV | Progressive |
| 720p | 1280x720 | 50,60Hz | YPbPr, RGBHV | Progressive |
| 1080i | 1920x1080 | 50,60Hz | YPbPr, RGBHV | Pseudo Interlaced ⁽¹⁾ |

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 PACKAGE CONTENTS

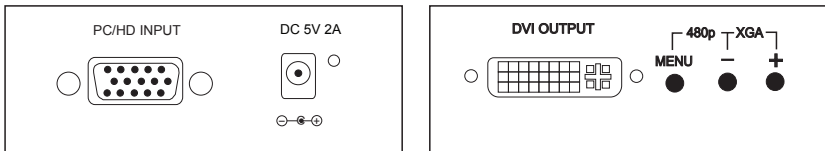
Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- DVI-3210a VGA to DVI Scaler/Converter
- External AC Power Adapter (100~240VAC to 5VDC)
- Component Video (YPbPr) 3x RCA to VGA Adapter Cable
- 6 ft. HD15M (VGA) Cable
- 6 ft. DVI Cable
- User Guide

Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or DVIgear immediately. Please have the Model Number, Serial Number and Invoice Number available for reference when you call.

4.0 CONNECTING THE HARDWARE

The first step is to connect a video source to the input of the unit and to connect its output to a display device. Below you'll find drawings of the unit showing the locations of the input, output and power connectors.



DVI-3210a Input / Output Panels

4.1 Connecting the Input

The DVI-3210a can accept both VGA and HDTV inputs. When connecting a VGA format input, use the provided HD15 (VGA) cable. When connecting HDTV signal inputs, use the supplied Component Video (3x RCA) to VGA Adapter Cable. The DVI-3210a will automatically detect the mode and resolution of the PC/HDTV input signal.

4.2 Connecting the Output

The DVI-3210a Video Scaler can output a wide variety of PC and HDTV resolutions both in digital (DVI-D) and analog (DVI-A) formats. To use the device with a DVI-D capable display, connect the supplied DVI cable from the unit's DVI output to the DVI input on the monitor, then select DVI-D mode in the Output Setup menu. This is the standard configuration for the device. To use the analog output of the DVI-3210a, select the DVI-A mode in the Output Setup menu. You must use a DVI-I to VGA adapter cable (DVIgear p.n. DVI-8415b) and a high quality VGA cable to connect the analog output to a VGA compatible display (sold separately).

Note: Proper signal levels are very important to the operation of this product. If improper operation of the unit occurs and the unit has power, the most likely cause of the problem is high or low signal levels, use of a low quality cable, or the use of the wrong type of input cable.

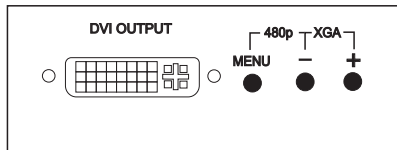
4.3 Connecting Power to the Unit

This unit is shipped with an External AC Power Adapter that converts 100~240VAC @ 50-60Hz to 5VDC. Connect the DC Output Cord from the Power Adapter to the back of the unit and then plug the Power Adapter into an AC power receptacle. When AC power is applied in this fashion, the Power LED indicator will illuminate.

5.0 OPERATING THE UNIT

5.1 On-Screen Menus

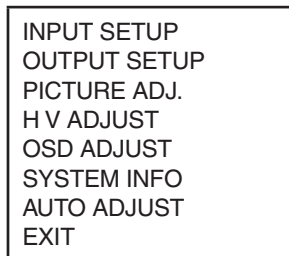
The DVI-3210a is controlled via three buttons with status indicated by an On-Screen Display (OSD).



DVI-3210a

- **Menu Button:** This Button displays the Menu Options via the On-Screen Display on the display device connected to the output.
- **+ 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 @60 Hz.

Pressing the Menu Button results brings up the **Main Menu**. Move the cursor to the desired setup option by using the + and – buttons. Press the Menu Button again to call up that option.



Once the desired option is selected, a new Menu will appear. Once again use the + & – Keys to select the parameter you wish to change or adjust.

5.2 Input set up – When you select the first item on the main menu, **Input Set up**, a secondary menu will show the following three (3) selections:

| | | |
|-------|---|-------|
| Clock | <input type="text" value="██████████"/> | 32/64 |
| Phase | <input type="text" value="████████"/> | 22/31 |
| YPBPR | <input type="checkbox"/> | RGB |

Clock: Use this parameter to adjust for the optimal input clock frequency. (i.e. where picture is stable and unskewed).

Pressing the + button narrows the width of the picture toward the left.
 Pressing the - button extends the width of the picture toward the right.

Phase: Use the + and- buttons to adjust for least amount of noise in the picture.

Input Select: The DVI-3210a will automatically detect and display the input signal format. You can also manually select the input format by selecting either the YPrPb or RGB input mode.

For all menu items, use the + or – buttons to choose the parameter you want to adjust, then press the Menu button to highlight your selection. Once a parameter is highlighted, use the + or – buttons to increase or decrease the value of the setting. Press Menu again to leave the setting and then move the arrow to the word “Exit”. Press Menu button again to exit the OSD.

5.3 Output set up – When the **Output Setup** option is selected, a new sub-menu appears that allows you to select the output mode and resolution. Selecting the DVI-D mode enables the digital output over the DVI-I connector. Selecting the DVI-A mode enables the analog output. Use the OSD menu to select the desired output resolution and then Press the menu key to save your selection. Press the menu button to exit setup.

5.4 Output Adjustments When in DVI-D Mode:

Picture Adjust – When the Picture Adjust Menu is selected, the following adjustment parameters and default values will appear on the OSD:

| | | |
|----------|---|-----|
| Contrast | <input type="text" value="██████████"/> | 70 |
| Bright | <input type="text" value="██████████"/> | 130 |
| Color | <input type="text" value="██████████"/> | 70 |
| Red | <input type="text" value="██████████"/> | 128 |
| Green | <input type="text" value="██████████"/> | 128 |
| Blue | <input type="text" value="██████████"/> | 128 |
| Reset | | |
| Exit | | |

5.5 Menu Ranges and Defaults

The adjustment range and factory preset values are as follows:

| Value | Range | Default Value |
|----------|-------|---------------|
| Contrast | 0~255 | 70 |
| Bright | 0~255 | 130 |
| Color | 0~255 | 70 |
| Red | 0~255 | 128 |
| Green | 0~255 | 128 |
| Blue | 0~255 | 128 |

Note: Select reset to restore all adjustments to factory default values.

H V Adjust: When selected, the following sub-menu appears.

H-position 84/184
 V-position 30/32

Use the + and – buttons to adjust the best horizontal and vertical position of the picture.

OSD Adjust: When this mode is selected, you can adjust the Horizontal and Vertical position of the OSD menu.

System Information: When selected, this shows the input/output resolutions and their vertical refresh rate on the screen.

Auto Adjust: When selected the DVI-3210a will automatically reset all adjustment parameters to their factory default values.

Exit: Select to exit from the current menu page.

Notes:

- The default output resolution of the DVI-3210a is XGA@60 Hz.
- The unit has non-volatile memory and memorizes all user settings before Power OFF and recalls those settings on next Power ON; however, changing output resolution erases all settings.
- At any time, pressing + and - buttons simultaneously will reset the output resolution to XGA@60Hz, and forces all other settings back to factory default values.

6.0 TROUBLESHOOTING

Other than checking for faulty cables, the most common problem is choosing an incorrect Input or Output Setting. Make sure the display is capable of handling the resolution and refresh rate selected. Also be sure to use the correct type of cable for the input format selected (YPbPr or RGB mode).



After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions. Should the dealer's technical personnel be unable to assist you, please contact DVIgear via telephone at (888) 463-9927 (United States and Canada); international callers may dial (770) 421-6699, or through e-mail at support@dvigear.com.

7.0 LIMITED WARRANTY

LIMITED WARRANTY – With the exceptions noted in the next paragraph, DVIgear, Inc. warrants the original purchaser that the equipment it manufactures or 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's opinion, prove defective within this warranty period, DVIgear, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of DVIgear. 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 and return the product freight prepaid to a location designated by DVIgear. After repairs are complete, the 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 two years from the date of purchase. DVIgear assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

DVIgear 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 with respect to any defective products will be limited to the repair or replacement of such products. In no event shall DVIgear 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.

8.0 REGULATORY COMPLIANCE

This product has been tested for compliance with: FCC Class B and CE. The External AC Power Adapter supplied with this product has been tested for compliance with: UL, CSA and CE. This product is RoHS compliant.



Your Digital Connectivity Experts

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