



VGA to DVI Scaler/Converter

EXT-VGA-DVI-SC

User Manual



Release A1

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

Warranty Information

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

Technical Support

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Product Registration

Register your product here: <http://www.gefen.com/kvm/Registry/Registration.jsp>

- By default, the current input and output resolution will be displayed whenever the VGA to DVI Scaler/Converter is disconnected from the source or display or if a change in the video output settings are made. This feature can be disabled through the Display Notify option. See [Display Notify \(page 33\)](#) and the `#set_display_notify` command for more information.
- When specifying a preset within the included set of command, the preset value will always be displayed as one greater than the original value. See [Using Preset Values \(page 48\)](#) for more information.
- Always make sure that the VGA to DVI Scaler/Converter is running the latest firmware. The Gefen Syner-G Software Suite is a free downloadable application from Gefen that provides automatic download and installation of firmware upgrades for this product.

Download the application here: <http://www.gefen.com/support/download.jsp>

VGA to DVI Scaler/Converter is a trademark of Gefen, LLC.

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Gefen, LLC reserves the right to make changes in the hardware, packaging, and any accompanying documentation without prior written notice.



This product uses UL or CE listed power supplies.

Features

- Converts and scales VGA to DVI
- Input resolutions up to 1920 x 1200 (WUXGA)
- Output resolutions up to 1080p60 and 1920 x 1200 (WUXGA)
- On-screen display (OSD) menu allows easy set-up and control
- Aspect Ratio Control: Full Screen, Panoramic, Letter/Pillar, Extract/Crop
- Test Pattern Generator for quick system configuration
- Gefen Syner-G™ simplifies in-field firmware updates and advanced EDID management including custom input timings
- USB port for use with Gefen Syner-G™
- Wide power supply operating range (6V to 24V DC)
- Locking power supply connector
- Surface mountable

Packing List

The VGA to DVI Scaler/Converter ships with the items listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Gefen.

- 1 x VGA to DVI Scaler/Converter
- 1 x 6 ft. VGA cable (M-M)
- 1 x 12V Power Supply
- 1 x Quick-Start Guide



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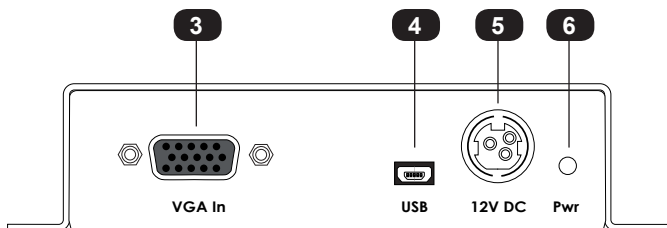
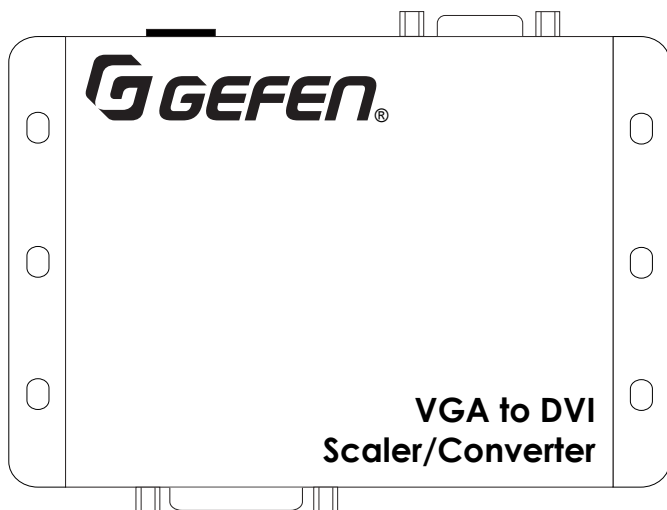
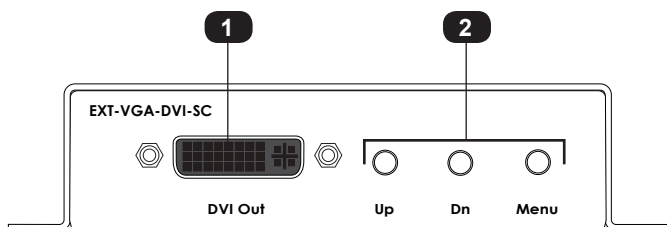
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VGA to DVI Scaler/Converter

1

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ID	Name	Description
1	DVI Out	Use a DVI cable to connect a DVI display to this port.
2	Up, Dn, Menu	These push-buttons are used to change settings within the on-screen menu system. See Menu System (page 8) for more information.
3	VGA In	Connect the included VGA cable from source device (e.g. computer) to this port.
4	USB	This mini-USB port is used for upgrading the firmware.
5	12V DC	Connect the included 12V DC power supply to this power receptacle.
6	Pwr	Under normal operating conditions, this LED indicator will glow bright blue.

Connection Instructions

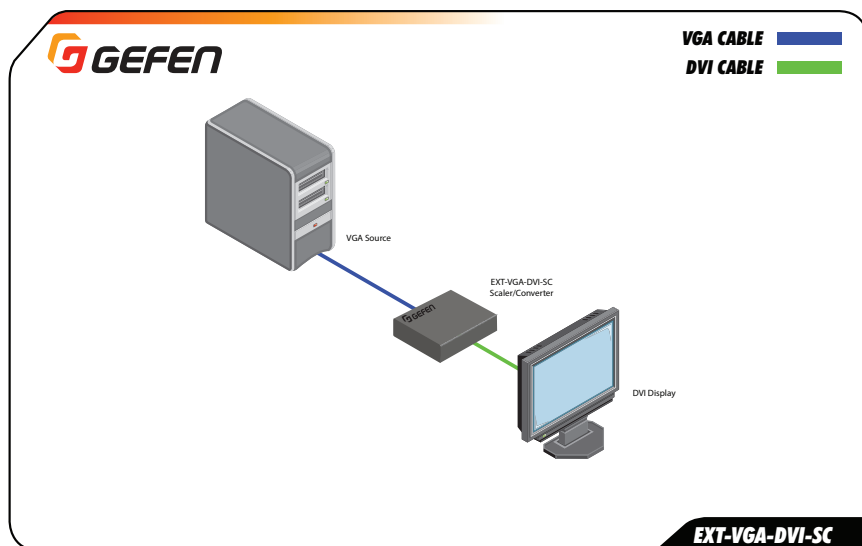
► Video

1. Connect the included VGA cable from the video source (e.g. computer) to the **VGA In** port on the VGA to DVI Scaler/Converter.
2. Connect a DVI cable from the **DVI Out** port to a DVI display.

► Power

3. Connect the included power supply to the 12V DC power receptacle and connect the power cord to an available electrical outlet.

Sample Wiring Diagram



VGA to DVI Scaler/Converter

2

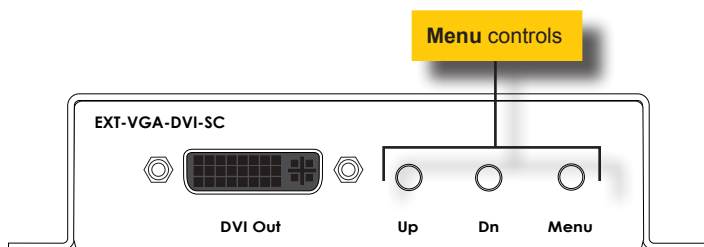
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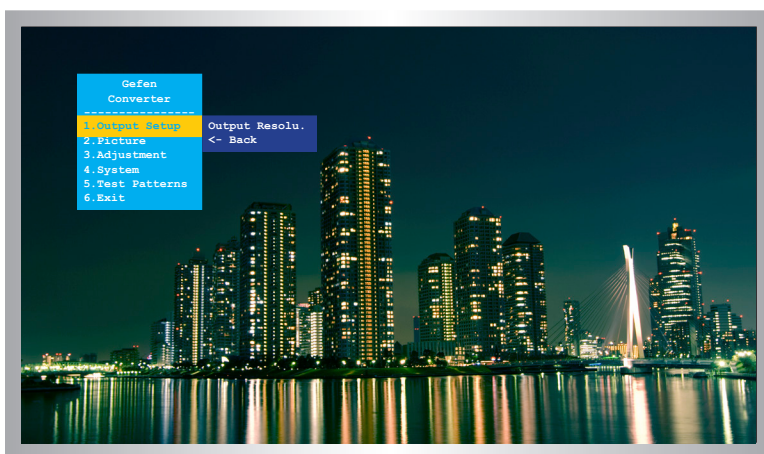
Displaying the Menu System

The VGA to DVI Scaler/Converter uses a built-in menu system to manage and control all video features.

1. To display the menu system, press the **Menu** button on the front panel.



2. The menu system will be displayed in the upper-left corner of the screen, as shown below:

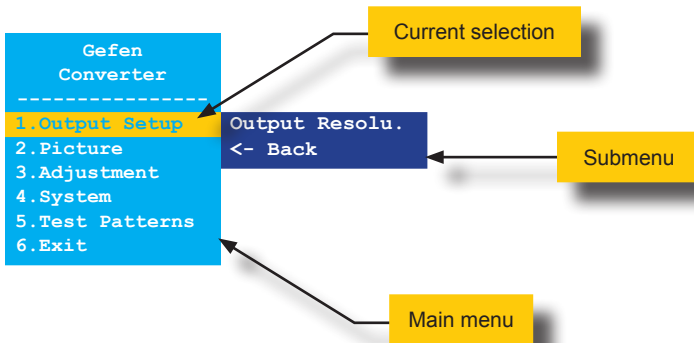


If the menu system is not used within the time interval specified by the OSD Timeout setting, then the menu system will automatically be hidden. By default, the OSD Timeout setting is 5 seconds. See [OSD Timeout \(page 32\)](#) for instructions on setting the OSD Timeout value.

(continued on next page)

Moving around within the Menu System

1. There are six menu items within the *main menu*: **Output Setup**, **Picture**, **Adjustment**, **System**, **Test Patterns**, and **Exit**.
2. The currently selected item within the main menu will always be highlighted in yellow.
3. Each item within the main menu, with the exception of **Exit**, contains a *submenu*. The submenu, for each item in the main menu, is displayed automatically.



4. Use the **Up** or **Dn** button to highlight the desired item within the main menu.

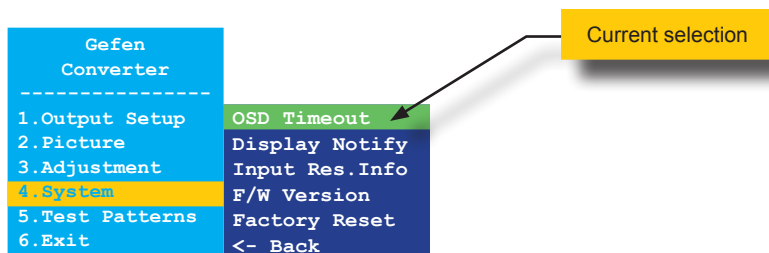
For example, if we press the **Dn** button three times, the **System** menu item will be highlighted and its submenu will be displayed.

Gefen Converter	

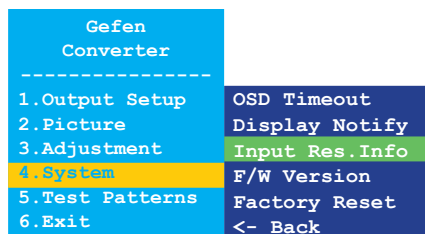
1. Output Setup	OSD Timeout
2. Picture	Display Notify
3. Adjustment	Input Res.Info
4. System	F/W Version
5. Test Patterns	Factory Reset
6. Exit	<- Back

(continued on next page)

5. To access the submenu for the highlighted item within the main menu, press the **Menu** button a second time. When a submenu is activated, a green bar is used to indicate the current selection. By default, the top submenu item will always be highlighted once a submenu is activated.



6. Use the **Up** or **Dn** button to select the desired option within the submenu.

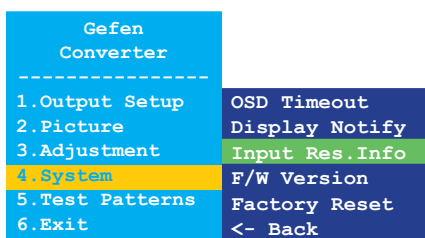


7. To select the highlighted submenu item, press the **Menu** button.

For example, if we press the **Menu** button when the **Input Res. Info** option is highlighted, the menu system will be hidden and the following will be displayed:

Input Res. Info ◀ [1600x1200p60] ▶

8. Press the **Menu** button to return to the menu system.



9. To exit the submenu and return to the main menu, use the **Up** or **Dn** button to highlight the **<- Back** option.

Gefen Converter -----	
1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

10. Press the **Menu** button to return to the main menu.

Gefen Converter -----	
1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

11. To exit the menu system, use the **Up** or **Dn** button to highlight the **Exit** option:

Gefen Converter -----	
1.Output Setup	
2.Picture	
3.Adjustment	
4.System	
5.Test Patterns	
6.Exit	

12. Press the **Menu** button to select the **Exit** option.
13. The menu system is now hidden. To display the menu system again, press the **Menu** button.



Information

By default, the menu system will automatically time-out if no action is taken within 5 seconds. To exit the menu system manually (before the time-out period), highlight the **Exit** option then press the **Menu** button.

See OSD Timeout (page 32) for more information.

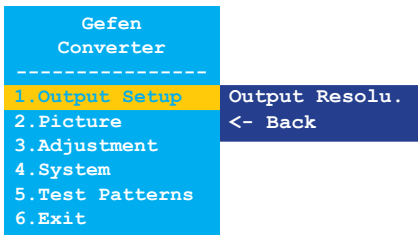
Output Resolution



Warning

Before changing this setting, make sure that the connected display can support the selected output resolution. If an unsupported resolution is selected, the unit will need to be reset using the DIP switch on the bottom of the unit. See [DIP Switch Configuration \(page 40\)](#) for more information.

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Press the **Menu** button to access the **Output Setup** submenu. The **Output Resolu.** option will be highlighted.
3. Press the **Menu** button to select the **Output Resolu.** option.



4. The **Output Resolu.** selection box be displayed:



5. Use the **Up** or **Dn** button to select the desired resolution. For a list of available output resolutions that are supported by the VGA to DVI Scaler/Converter, see [Menu System Summary \(page 118\)](#).
6. After the desired output resolution is selected, press the **Menu** button to confirm the change.
7. After the output resolution has been changed, the current input and output resolution will be displayed above the **Output Resolu.** selection box:

Input	1600x1200p60
Output	640x480p60

(continued on next page)



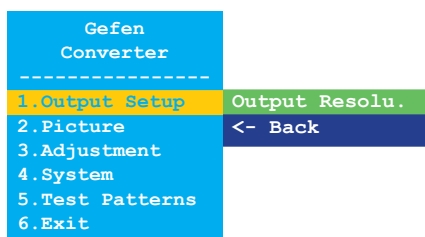
Information

The input/output resolution information dialog will only be displayed if **Display Notify** is set to On. See [Display Notify \(page 33\)](#) for more information.

8. After a few seconds, the input and output resolution information dialog will disappear.
9. The **Output Resolu.** dialog is still displayed:

Output Resolu. ◀ [640x480p60] ▶

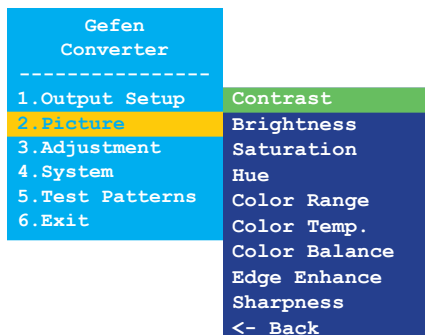
10. Press the **Menu** button to return to the **Output Setup** submenu:



11. Use the **Up** or **Dn** button to select the **<- Back** option.
12. Press the **Menu** button.
13. Use the **Up** or **Dn** button to select the **Exit** option
14. Press the **Menu** button to exit the main menu.

Contrast

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.



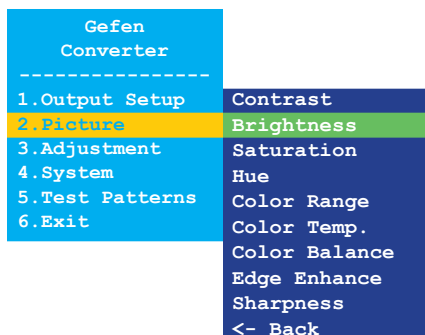
4. Press the **Menu** button to select the **Contrast** option.
5. The **Contrast** selection box will be displayed:



6. Use the **Up** or **Dn** button to set the desired contrast level.
7. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
8. Use the **Up** or **Dn** button to select the **<- Back** option.
9. Press the **Menu** button.
10. Use the **Up** or **Dn** button to select the **Exit** option
11. Press the **Menu** button to exit the main menu.

Brightness

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Brightness** option.



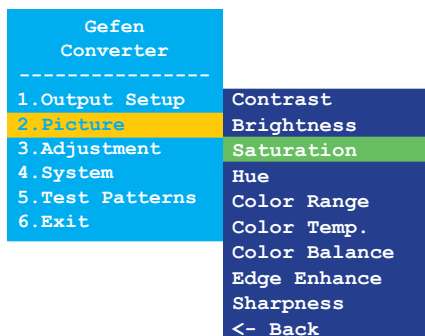
5. Press the **Menu** button to select the **Brightness** option.
6. The **Brightness** selection box will be displayed:



7. Use the **Up** or **Dn** button to set the desired brightness level.
8. Press the **Menu** button to confirm the change and return to **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Saturation

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Saturation** option.



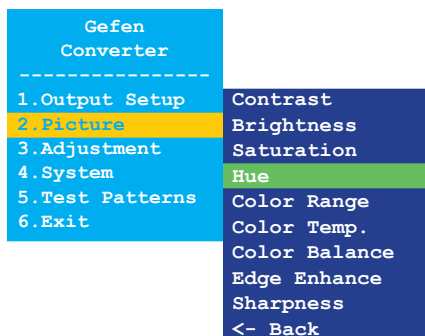
5. Press the **Menu** button to select the **Saturation** option.
6. The **Saturation** selection box will be displayed:



7. Use the **Up** or **Dn** button to set the desired saturation level.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Hue

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Hue** option.



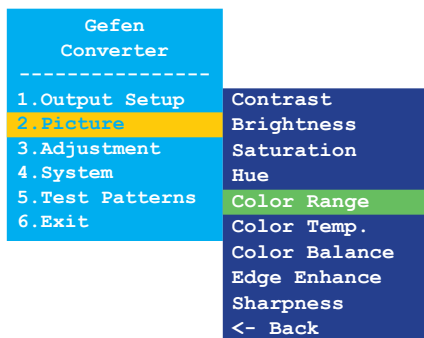
5. Press the **Menu** button to select the **Hue** option.
6. The **Hue** selection box will be displayed:



7. Use the **Up** or **Dn** button to set the desired hue.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Color Range

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Color Range** option.



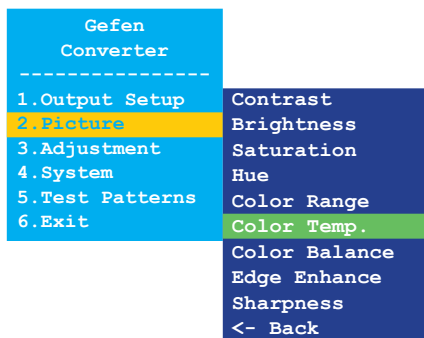
5. Press the **Menu** button to select the **Color Range** option.
6. The **Color Range** selection box will be displayed:

Color Range ◀ Limited ▶

7. Use the **Up** or **Dn** button to select between **Limited** or **Full**.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Color Temperature

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Color Temp.** option.



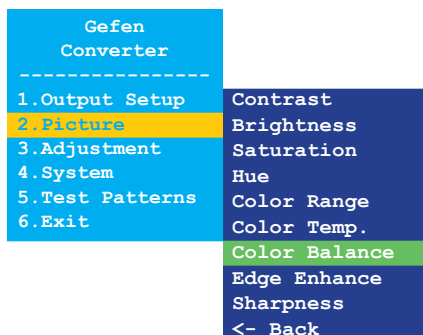
5. Press the **Menu** button to select the **Color Temp.** option.
6. The **Color Temp.** selection box will be displayed:

Color Temp. ◀ Neutral ▶

7. Use the **Up** or **Dn** button to select between **Neutral**, **Cool**, or **Warm**.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Color Balance

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Color Balance** option.



5. Press the **Menu** button to select the **Color Balance** option.
6. The **Color Balance** selection box will be displayed:

Color Balance [Red Ch. 50]

7. Use the **Up** or **Dn** button to switch between **Red Ch.**, **Blue Ch.**, and **Blue Ch.**
8. Press the **Menu** button to select the color channel to adjust.



9. Use the **Up** or **Dn** button to set the desired color balance setting.
10. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
11. Use the **Up** or **Dn** button to select the **<- Back** option.
12. Press the **Menu** button.
13. Use the **Up** or **Dn** button to select the **Exit** option
14. Press the **Menu** button to exit the main menu.

Edge Enhance

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Edge Enhance** option.



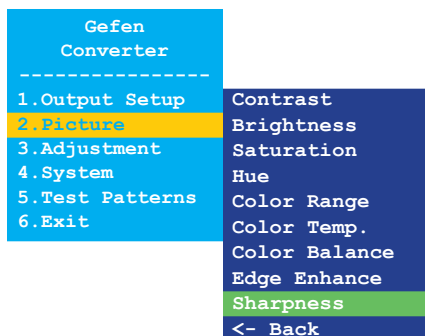
5. Press the **Menu** button to select the **Edge Enhance** option.
6. The **Edge Enhance** selection box will be displayed:

Edge Enhance ◀ [User] ▶

7. Use the **Up** or **Dn** button to select between **User**, **Off**, **Mid**, or **Max**.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Sharpness

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Picture** option.
3. Press the **Menu** button to access the **Picture** submenu. The **Contrast** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Sharpness** option.



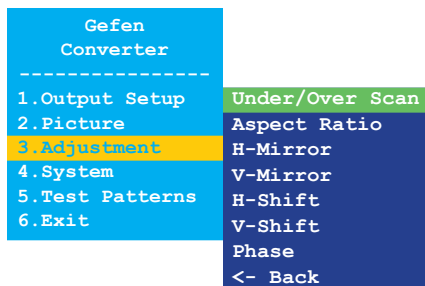
5. Press the **Menu** button to select the **Sharpness** option.
6. The **Sharpness** selection box will be displayed:



7. Use the **Up** or **Dn** button to set the sharpness level. Larger values increase the sharpness of the image.
8. Press the **Menu** button to confirm the change and return to the **Picture** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Underscan/Overscan

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.



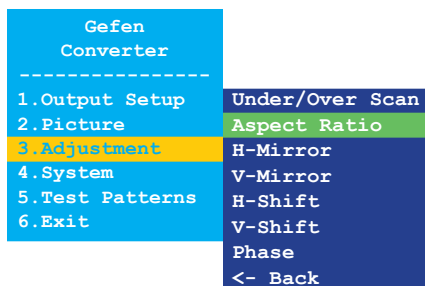
4. Press the **Menu** button to select the **Under/Over Scan** option.
5. The **Under/Over Scan** selection box will be displayed:



6. Use the **Up** or **Dn** button to set the amount of overscan or underscan. Negative values increase the amount of *underscan*. Positive values increase the amount of *overscan*.
7. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
8. Use the **Up** or **Dn** button to select the **<- Back** option.
9. Press the **Menu** button.
10. Use the **Up** or **Dn** button to select the **Exit** option
11. Press the **Menu** button to exit the main menu.

Aspect Ratio

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Aspect Ratio** option.



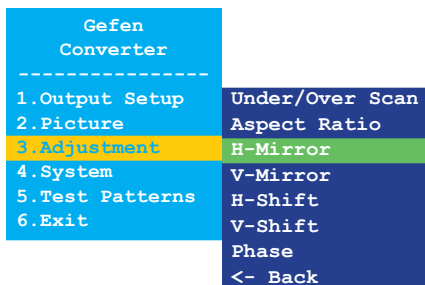
5. Press the **Menu** button to select the **Aspect Ratio** option.
6. The **Aspect Ratio** selection box will be displayed:

Aspect Ratio ◀ [Source] ▶

7. Use the **Up** or **Dn** button to select between **Source**, **16:9**, **4:3**, or **Stretch**.
8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Horizontal Mirror

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **H-Mirror** option.



5. Press the **Menu** button to select the **H-Mirror** option.
6. The **H-Mirror** selection box will be displayed:

H-Mirror ◀ [Off] ▶

7. Use the **Up** or **Dn** button to toggle between **On** and **Off**. When the **H-Mirror** option is set to **On**, then the picture will be flipped horizontally (about the Y-axis).

H-Mirror ◀ [Off] ▶



H-Mirror ◀ [On] ▶

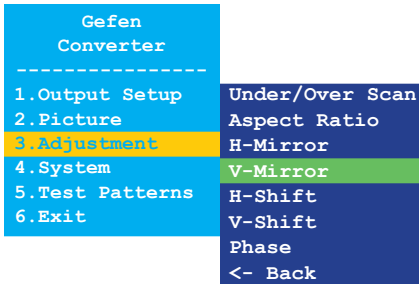


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8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Vertical Mirror

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **V-Mirror** option.



5. Press the **Menu** button to select the **V-Mirror** option.
6. The **V-Mirror** selection box will be displayed:

V-Mirror ◀ [Off] ▶

7. Use the **Up** or **Dn** button to toggle between **On** and **Off**. When the **V-Mirror** option is set to **On**, then the picture will be flipped vertically (about the X-axis).

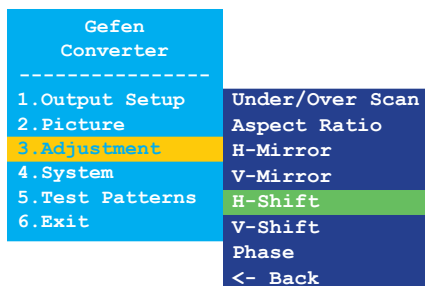


(continued on next page)

8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Horizontal Shift

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **H-Shift** option.



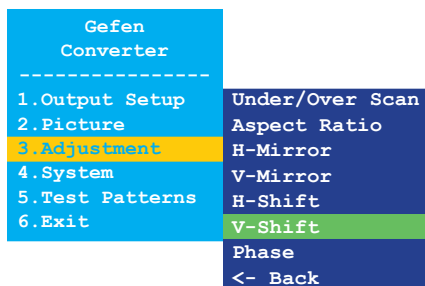
5. Press the **Menu** button to select the **H-Shift** option.
6. The **H-Shift** selection box will be displayed:



7. Use the **Up** or **Dn** button to shift the picture to the left or to the right. Negative values, move the image to the left. Positive values move the image to the right.
8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Vertical Shift

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **V-Shift** option.



5. Press the **Menu** button to select the **V-Shift** option.
6. The **V-Shift** selection box will be displayed:



7. Use the **Up** or **Dn** button to shift the picture up or down. Negative values, move the image upwards. Positive values move the image downwards.
8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Phase

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Adjustment** option.
3. Press the **Menu** button to access the **Adjustment** submenu. The **Under/Over Scan** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Phase** option.

Gefen Converter	

1.Output Setup	Under/Over Scan
2.Picture	Aspect Ratio
3.Adjustment	H-Mirror
4.System	V-Mirror
5.Test Patterns	H-Shift
6.Exit	V-Shift
	Phase
	<- Back

5. Press the **Menu** button to select the **Phase** option.
6. The **Phase** selection box will be displayed:



7. Use the **Up** or **Dn** button to adjust the phase.
8. Press the **Menu** button to confirm the change and return to the **Adjustment** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

OSD Timeout

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **System** option.
3. Press the **Menu** button to access the **System** submenu. The **OSD Timeout** option will be highlighted.

Gefen Converter	

1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

4. Press the **Menu** button to select the **OSD Timeout** option.
5. The **OSD Timeout** selection box will be displayed:

OSD Timeout ◀ 5sec ▶

6. Use the **Up** or **Dn** button to set the OSD timeout to **Off** or from any time interval between 5 and 60 seconds, inclusive. The default setting is 5 seconds.
7. Press the **Menu** button to confirm the change and return to the **System** submenu.
8. Use the **Up** or **Dn** button to select the **<- Back** option.
9. Press the **Menu** button.
10. Use the **Up** or **Dn** button to select the **Exit** option
11. Press the **Menu** button to exit the main menu.

Display Notify

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **System** option.
3. Press the **Menu** button to access the **System** submenu. The **OSD Timeout** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Display Notify** option.

Gefen Converter	

1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

5. Press the **Menu** button to select the **Display Notify** option.
6. The **Display Notify** selection box will be displayed:

Display Notify ◀ [On] ▶

Use the **Up** or **Dn** button to toggle between **On** and **Off**. When **Display Notify** is set to **On**, then the input/output resolution information dialog will be displayed, momentarily, whenever the VGA to DVI Scaler/Converter is disconnected from the source or display:

Input	1600x1200p60
Output	640x480p60

In addition, setting the [Output Resolution \(page 12\)](#) also triggers the input/output resolution information dialog. When set to **Off**, the input/output resolution information dialog is never displayed.

(continued on next page)

8. Press the **Menu** button to confirm the change and return to the **System** submenu.
9. Use the **Up** or **Dn** button to select the **<- Back** option.
10. Press the **Menu** button.
11. Use the **Up** or **Dn** button to select the **Exit** option
12. Press the **Menu** button to exit the main menu.

Input Resolution Information

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **System** option.
3. Press the **Menu** button to access the **System** submenu. The **OSD Timeout** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Input Res. Info** option.

Gefen Converter	

1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

5. Press the **Menu** button to select the **Input Res. Info** option.
6. The current input resolution will be displayed in the **Input Res. Info** box.

Input Res.Info ◀ 1600x1200p60 ▶

7. Press the **Menu** button to return to the **System** submenu.
8. Use the **Up** or **Dn** button to select the **<- Back** option.
9. Press the **Menu** button.
10. Use the **Up** or **Dn** button to select the **Exit** option
11. Press the **Menu** button to exit the main menu.

F/W Version

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **System** option.
3. Press the **Menu** button to access the **System** submenu. The **OSD Timeout** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **F/W Version** option.

Gefen Converter	

1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

5. Press the **Menu** button to select the **F/W Version** option.
6. The current version of firmware will be displayed in the **F/W Version** box.

F/W Version ◀ V1.012 ▶

7. Press the **Menu** button to return to the **System** submenu.
8. Use the **Up** or **Dn** button to select the **<- Back** option.
9. Press the **Menu** button.
10. Use the **Up** or **Dn** button to select the **Exit** option
11. Press the **Menu** button to exit the main menu.

Factory Reset

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **System** option.
3. Press the **Menu** button to access the **System** submenu. The **OSD Timeout** option will be highlighted.
4. Use the **Up** or **Dn** button to highlight the **Factory Reset** option.

Gefen Converter	

1.Output Setup	OSD Timeout
2.Picture	Display Notify
3.Adjustment	Input Res.Info
4.System	F/W Version
5.Test Patterns	Factory Reset
6.Exit	<- Back

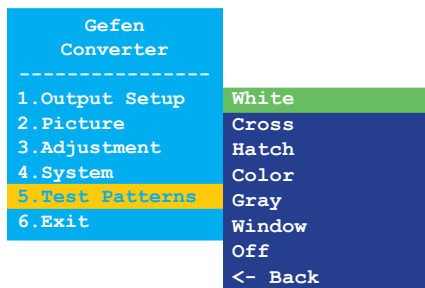
5. Press the **Menu** button to select the **Factory Reset** option.
6. The **Factory Reset** selection box will be displayed.

Factory Reset ◀ [No] ▶

7. Use the **Up** or **Dn** button to toggle between **No** and **Yes**.
 - ▶ If **Yes** is selected, then the VGA to DVI Scaler/Converter will reset to factory-default settings and will automatically reboot.
 - ▶ If **No** is selected, then the VGA to DVI Scaler/Converter will return to the **System** submenu.
 - a. Use the **Up** or **Dn** button to select the **<- Back** option.
 - b. Press the **Menu** button.
 - c. Use the **Up** or **Dn** button to select the **Exit** option.
 - d. Press the **Menu** button to exit the main menu.

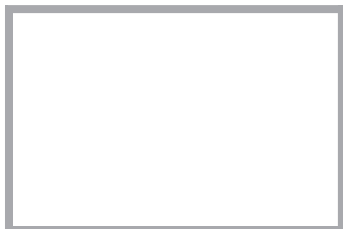
Test Patterns

1. Press the **Menu** button on the front panel. The **Output Setup** option will be highlighted.
2. Use the **Up** or **Dn** button to highlight the **Test Patterns** option.
3. Press the **Menu** button to access the **Test Patterns** submenu. The **White** option will be highlighted.

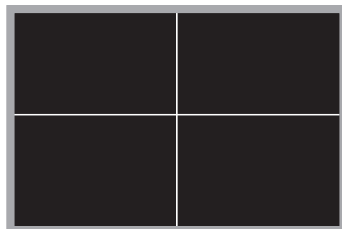


4. Use the **Up** or **Dn** button to highlight the desired test pattern.
5. Press the **Menu** button to select the highlighted test pattern.

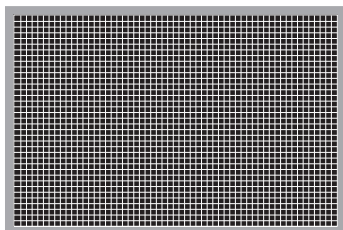
White



Cross



Hatch

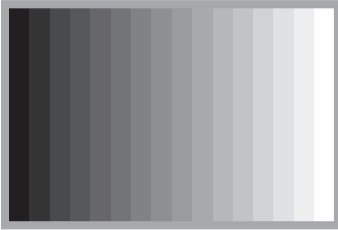


Color

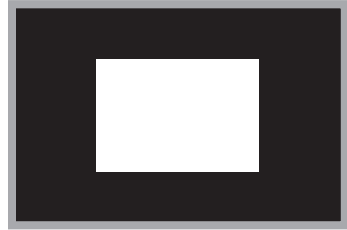


(continued on next page)

Gray



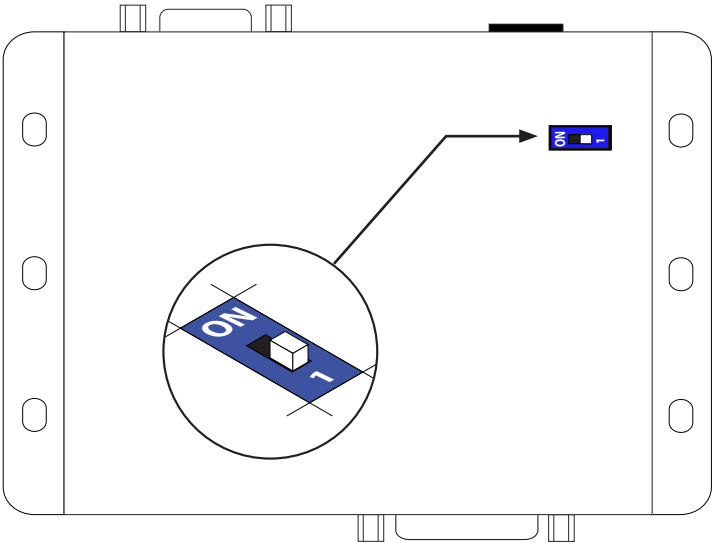
Window



6. Press the **Menu** button to return to the **Test Patterns** submenu and select a different pattern.
7. To disable the pattern and view the source image, select **Off** from the **Test Patterns** submenu.

DIP Switch Configuration

On the bottom panel of the VGA to DVI Scaler/Converter is a single DIP switch. Remove the piece of colored tape to reveal the DIP switch bank.



By default, the DIP switch is in the OFF (1) position. The DIP switch should remain in this position during normal operation.

DIP Switch	Description	
1	Factory reset	
	Normal Operation	

VGA to DVI Scaler/Converter

3

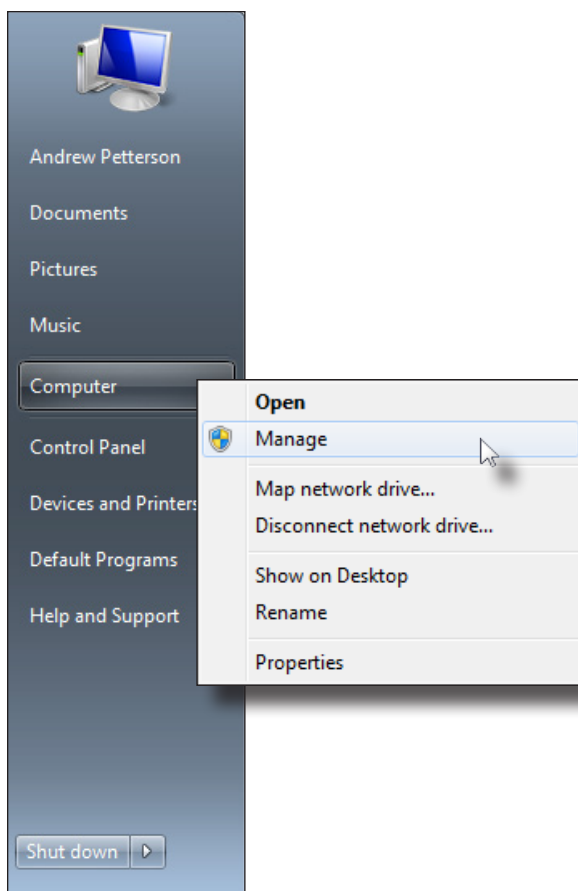
Advanced Operation

USB Interface	44
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Installing the Virtual COM Port

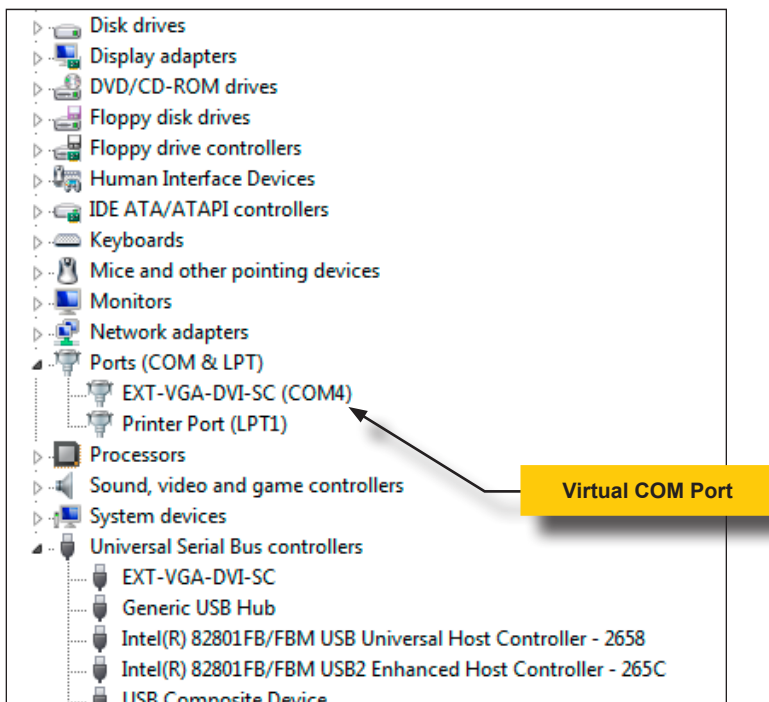
In order to control the VGA to DVI Scaler/Converter using the following commands, a virtual COM port must be installed on the computer that is connected to the VGA to DVI Scaler/Converter.

1. Install the Gefen Syner-G Software Suite. This software is available under the **Support > Downloads** section of the Gefen website.
2. Connect a mini-USB-to-USB cable (not included) from the **USB** port on the VGA to DVI Scaler/Converter to an available USB port on the host computer.
3. From the Windows Desktop, click the **Start** button, select **Computer**, then right-click on **Manage**.



6. The **Computer Management** window will open.
7. In the left window pane, under **System Tools**, click **Device Manager**.
8. In the right window pane, locate **Ports (COM & LPT)**. The device **EXT-VGA-DVI-SC** will be displayed along with the COM port.

Use this COM port when configuring the terminal program (e.g. Hyperterminal).



Set the terminal program to the following:

Description	Setting
Baud rate	19200
Data bits	8
Parity	None
Stop bits	1
Hardware flow control	None

Command	Description
#factory_res	Resets the unit to factory-default settings
#fw_upgrade	Enables the firmware upgrade mode
#get_aspect_ratio	Displays the current aspect ratio setting
#get_brightness	Displays the current brightness setting
#get_color_balance	Displays the value of the specified color channel
#get_color_range	Displays the current color range setting
#get_color_temp	Displays the current color temperature setting
#get_contrast	Displays the current contrast setting
#get_display_notify	Displays the current display-notify setting
#get_edge_enhance	Displays the current edge-enhance setting
#get_firmware_version	Displays the firmware version number
#get_horizontal_mirror	Displays the state of the horizontal mirror setting
#get_horizontal_shift	Displays the state of the horizontal shift setting
#get_hue	Displays the current hue setting
#get_input_resolution	Displays the current input resolution
#get_osd_timeout	Displays the current OSD timeout value
#get_output_res	Displays the current output resolution
#get_phase	Displays the current phase setting
#get_picture_settings	Displays the current picture settings
#get_saturation	Displays the current saturation setting
#get_sharpness	Displays the current sharpness setting
#get_test_patterns	Displays the currently active test pattern
#get_timing_preset	Display the timing of the selected preset
#get_uo_scan	Displays the current underscan/overscan value
#get_vertical_mirror	Displays the current vertical mirror state
#get_vertical_shift	Displays the current vertical shift value
#get_video_output	Displays the current video output settings
#get_video_settings	Displays the current video settings
#help	Displays all available commands
#reboot	Reboots the unit
#set_aspect_ratio	Sets the aspect ratio
#set_brightness	Sets the picture brightness
#set_color_balance	Sets the color balance
#set_color_range	Set the output color range

(continued on next page)

Command	Description
#set_color_temp	Sets the color temperature
#set_contrast	Sets the picture contrast
#set_display_notify	Enables / disables display notifications
#set_edge_enhance	Sets the edge enhancement
#set_horizontal_mirror	Sets horizontal mirror
#set_horizontal_shift	Sets horizontal shift
#set_horz_active	Sets the horizontal active
#set_horz_back_porch	Sets the horizontal back porch
#set_horz_front_porch	Sets the horizontal front porch
#set_horz_scan_rate	Sets the horizontal scan rate
#set_horz_sync_polarity	Sets the horizontal sync polarity
#set_horz_sync_width	Sets the horizontal sync width
#set_horz_total	Sets the total horizontal pixels
#set_hue	Sets the picture hue
#set_osd_timeout	Sets the OSD (On-Screen Display) timeout
#set_output_res	Sets the output resolution
#set_phase	Sets the phase adjustment
#set_pixel_clock	Sets the pixel clock
#set_saturation	Sets the picture saturation
#set_sharpness	Sets the picture sharpness
#set_test_patterns	Set the test pattern
#set_uo_scan	Set underscan / overscan
#set_vert_active	Sets the vertical active pixels
#set_vert_back_porch	Sets the vertical back porch
#set_vert_front_porch	Sets the vertical front porch
#set_vert_refresh_rate	Sets the vertical refresh rate
#set_vert_sync_polarity	Sets the vertical sync polarity
#set_vert_sync_width	Sets the vertical sync width
#set_vert_total	Sets the total vertical pixels
#set_vertical_mirror	Sets the vertical mirror
#set_vertical_shift	Sets the vertical shift

Using Preset Values

When a command is entered, the VGA to DVI Scaler/Converter will confirm the entry by returning the function of the command and any parameters. There are several commands which use a preset value as one of the parameters. When specifying a preset value as a parameter, the returned preset value will always be one greater than the value that was specified.

For example, if we look up the `#get_timing_preset` command, we will see that this command accepts a single preset value, where *param1* is a value from 0 to 5:

```
#get_timing_preset [param1]
```

If we set *param1* = 2, then the return value will be displayed as 3:

```
#get_timing_preset 2
Preset 3
Hor Scan = 45.0
Hor Active = 1280
Hor Ft Porch = 110
Hor Sync W = 40
Hor Bk Porch = 220
Hor Total = 1650
Hor Polarity = +

Pixel Clk = 74.25

Ver Refresh = 60.0
Ver Active = 720
Ver Ft Porch = 5
Ver Sync W = 5
Ver Bk Porch = 20
Ver Total = 750
Ver Polarity = +
```

#factory_reset

Resets the unit to factory-default settings.

Syntax

```
#factory_reset
```

Parameters

None

Example

```
#factory_reset  
RESET TO FACTORY DEFAULTS
```

Related Commands

```
#reboot
```

#fw_upgrade

Enables the firmware upgrade mode. We recommend that the Gefen Syner-G Software Suite be used to upgrade the firmware.

Syntax

```
#fw_upgrade
```

Parameters

None

Example

```
#fw_upgrade  
Waiting for firmware file to be received...
```

Related Commands

```
#get_firmware_version
```

#get_aspect_ratio

Displays the current aspect ratio setting.

Syntax

```
#get_aspect_ratio
```

Parameters

None

Example

```
#get_aspect_ratio  
ASPECT_RATIO IS Source
```

Related Commands

```
#get_video_settings  
#set_aspect_ratio
```

#get_brightness

Displays the current brightness value.

Syntax

```
#get_brightness
```

Parameters

None

Example

```
#get_brightness  
PICTURE BRIGHTNESS IS 52
```

Related Commands

```
#set_brightness
```

#get_color_balance

Displays the current color balance for the specified color channel.

Syntax

```
#get_color_balance param1
```

Parameters

param1 Color channel [0 ... 2]

param1	Description
0	Red channel
1	Green channel
2	Blue channel

Example

```
#get_color_balance 1  
PICTURE COLOR BALANCE Green Channel IS 50
```

Related Commands

```
#set_color_balance
```

#get_color_range

Displays the current color range setting.

Syntax

```
#get_color_range
```

Parameters

None

Example

```
#get_color_range  
PICTURE COLOR RANGE IS Limited
```

Related Commands

```
#set_color_range
```

#get_color_temp

Displays the current color temperature setting.

Syntax

```
#get_color_temp
```

Parameters

None

Example

```
#get_color_temp  
PICTURE COLOR TEMPERATURE IS Neutral
```

Related Commands

```
#set_color_temp
```

#get_contrast

Displays the current contrast setting.

Syntax

```
#get_contrast
```

Parameters

None

Example

```
#get_contrast  
PICTURE CONTRAST IS 68
```

Related Commands

```
#set_contrast
```

#get_display_notify

Displays the current display-notify setting. Refer to the #set_display_notify command for more information about Display Notification.

Syntax

```
#get_display_notify
```

Parameters

None

Example

```
#get_display_notify  
DISPLAY NOTIFICATIONS IS On
```

Related Commands

```
#set_display_notify
```

#get_edge_enhance

Displays the current edge-enhance setting.

Syntax

```
#get_edge_enhance
```

Parameters

None

Example

```
#get_edge_enhance  
PICTURE EDGE ENHANCEMENT IS Off
```

Related Commands

```
#set_edge_enhance
```

#get_firmware_version

Displays the current firmware version.

Syntax

```
#get_firmware_version
```

Parameters

None

Example

```
#get_firmware_version  
FIRMWARE VERSION IS V1.012
```

Related Commands

```
#fw_upgrade
```

#get_horizontal_mirror

Displays the horizontal mirror setting.

Syntax

```
#get_horizontal_mirror
```

Parameters

None

Example

```
#get_horizontal_mirror  
HORIZONTAL MIRROR IS Off
```

Related Commands

```
#get_vertical_mirror  
#set_horizontal_mirror
```

#get_horizontal_shift

Displays the current horizontal shift setting.

Syntax

```
#get_horizontal_shift
```

Parameters

None

Example

```
#get_horizontal_shift  
HORIZONTAL SHIFT IS Off
```

Related Commands

```
#set_horizontal_shift
```

#get_hue

Displays the current hue setting.

Syntax

```
#get_hue
```

Parameters

None

Example

```
#get_hue  
PICTURE HUE IS 50
```

Related Commands

```
#get_brightness  
#get_contrast  
#get_saturation  
#set_hue
```

#get_input_resolution

Displays the current input resolution.

Syntax

```
#get_input_resolution
```

Parameters

None

Example

```
#get_input_resolution  
INPUT RESOLUTION IS 1600x1200p60
```

Related Commands

```
#get_picture_settings
```

#get_osd_timeout

Displays the current OSD timeout value (in seconds).

Syntax

```
#get_osd_timeout
```

Parameters

None

Example

```
#get_osd_timeout  
OSD TIMEOUT IS 5 SECONDS
```

Related Commands

```
#set_osd_timeout
```

#get_output_res

Displays the current output resolution.

Syntax

```
#get_output_res
```

Parameters

None

Example

```
#get_output_res  
OUTPUT RESOLUTION IS 1400x1050 60Hz
```

Related Commands

```
#set_output_res
```

#get_phase

Displays the current phase setting.

Syntax

```
#get_phase
```

Parameters

None

Example

```
#get_phase  
PHASE IS 26
```

Related Commands

```
#get_video_settings  
#set_phase
```

#get_picture_settings

Displays the current picture settings. This command provides the same information as consecutively executing the following commands: #get_contrast, #get_brightness, #get_saturation, #get_hue, get_color_range, #get_color_temp, #get_color_balance, #get_edge_enhance, and #get_sharpness.

Syntax

```
#get_picture_settings
```

Parameters

None

Example

```
#get_picture_settings
PICTURE CONTRAST IS 50
PICTURE BRIGHTNESS IS 50
PICTURE SATURATION IS 50
PICTURE HUE IS 50
PICTURE COLOR RANGE IS Limited
PICTURE COLOR TEMPERATURE IS Neutral
PICTURE COLOR BALANCE Red Channel IS 50
PICTURE COLOR BALANCE Green Channel IS 50
PICTURE COLOR BALANCE Blue Channel IS 50
PICTURE EDGE ENHANCEMENT IS Off
PICTURE SHARPNESS IS 0
```

Related Commands

#get_brightness	#set_brightness
#get_contrast	#set_contrast
#get_color_balance	#set_color_balance
#get_color_range	#set_color_range
#get_color_temp	#set_color_temp
#get_edge_enhance	#set_edge_enhance
#get_hue	#set_hue
#get_saturation	#set_saturation
#get_sharpness	#set_sharpness

#get_saturation

Displays the current saturation value.

Syntax

```
#get_saturation
```

Parameters

None

Example

```
#get_saturation  
PICTURE SATURATION IS 50
```

Related Commands

```
#get_contrast  
#get_brightness  
#get_hue  
#get_color_range  
#get_color_temp  
#get_edge_enhance  
#get_sharpness
```

#get_sharpness

Displays the current sharpness value.

Syntax

```
#get_sharpness
```

Parameters

None

Example

```
#get_sharpness  
PICTURE SHARPNESS IS 0
```

Related Commands

```
#get_contrast  
#get_brightness  
#get_saturation  
#get_hue  
#get_color_range  
#get_color_temp  
#get_edge_enhance
```

#get_test_patterns

Displays the currently active test pattern.

Syntax

```
#get_test_patterns
```

Parameters

None

Example

```
#get_test_patterns  
TEST PATTERNS IS Off
```

Related Commands

```
#set_test_patterns
```

#get_timing_preset

Displays the values for the specified timing preset.

Syntax

```
#get_timing_preset
```

Parameters

<i>param1</i>	Preset	[0 ... 5]
---------------	--------	-----------

Example

```
#get_timing_preset 1
Preset 2
Hor Scan = 45.0
Hor Active = 1280
Hor Ft Porch = 110
Hor Sync W = 40
Hor Bk Porch = 220
Hor Total = 1650
Hor Polarity = +

Pixel Clk = 74.25

Ver Refresh = 60.0
Ver Active = 720
Ver Ft Porch = 5
Ver Sync W = 5
Ver Bk Porch = 20
Ver Total = 750
Ver Polarity = +
```

Related Commands

#set_horz_scan_rate	#set_vert_refresh_rate
#set_horz_active	#set_vert_active
#set_horz_front_porch	#set_vert_front_porch
#set_horz_sync_width	#set_vert_sync_width
#set_horz_back_porch	#set_vert_back_porch
#set_horz_total	#set_vert_total
#set_horz_sync_polarity	#set_vert_sync_polarity
#set_pixel_clock	

#get_uo_scan

Displays the current underscan or overscan value.

Syntax

```
#get_uo_scan
```

Parameters

None

Example

```
#get_uo_scan  
UNDER/OVER SCAN IS OFF
```

Related Commands

```
#set_uo_scan
```

#get_vertical_mirror

Displays the current vertical mirror value.

Syntax

```
#get_vertical_mirror
```

Parameters

None

Example

```
#get_vertical_mirror  
VERTICAL MIRROR IS Off
```

Related Commands

```
#get_horizontal_mirror  
#set_vertical_mirror
```

#get_vertical_shift

Displays the current vertical shift value.

Syntax

```
#get_vertical_shift
```

Parameters

None

Example

```
#get_vertical_shift  
VERTICAL SHIFT IS OFF
```

Related Commands

```
#get_horizontal_shift  
#set_vertical_shift
```

#get_video_output

Displays the current video output settings. This command produces the same output as the #get_output_res command.

Syntax

```
#get_video_output
```

Parameters

None

Example

```
#get_video_output  
OUTPUT RESOLUTION IS 1400x1050 60Hz
```

Related Commands

```
#get_output_res  
#set_output_res
```

#get_video_settings

Displays the current video settings. This command provides the same information as consecutively executing the #get_uo_scan, #get_aspect_ratio, #get_horizontal_mirror, #get_vertical_mirror, #get_horizontal_shift, #get_vertical_shift, and #get_phase commands.

Syntax

```
#get_video_settings
```

Parameters

None

Example

```
#get_video_settings
UNDER/OVER SCAN IS OFF
ASPECT RATIO IS Source
HORIZONTAL MIRROR IS Off
VERTICAL MIRROR IS Off
HORIZONTAL SHIFT IS OFF
VERTICAL SHIFT IS OFF
PHASE IS AUTO
```

Related Commands

```
#get_uo_scan
#get_aspect_ratio
#get_horizontal_mirror
#get_horizontal_shift
#get_phase
#get_vertical_mirror
#get_vertical_shift
#set_aspect_ratio
#set_horizontal_mirror
#set_horizontal_shift
#set_phase
#set_vertical_mirror
#set_vertical_shift
```

#help

Displays help on a specific command. If no command is specified (*param1*), then a list of all available commands will be displayed.

Syntax

```
#help [param1]
```

Parameters

<i>param1</i>	Command (optional)
---------------	--------------------

Examples

```
#help
```

```
#FACTORY_RESET
#FW_UPGRADE
#GET_ASPECT_RATIO
#GET_BRIGHTNESS
#SET_COLOR_BALANCE
#GET_COLOR_RANGE
#GET_COLOR_TEMP
#GET_CONTRAST
#GET_DISPLAY_NOTIFY
#GET_EDGE_ENHANCE
...
...
#SET_VERT_SYNC_WIDTH
#SET_VERT_TOTAL
#SET_VERTICAL_MIRROR
#SET_VERTICAL_SHIFT
```

```
#help #set_aspect_ratio
```

```
#SET_ASPECT_RATIO
Set aspect ratio
#SET_ASPECT_RATIO PARAM 1
PARAM 1= 0-3
0 - 16:9
1 - 4:3
2 - Stretch
3 - Source
```

#reboot

Reboots the unit.

Syntax

```
#reboot
```

Parameters

None

Example

```
#reboot  
UNIT WILL REBOOT SHORTLY
```

Related Commands

```
#factory_reset
```

#set_aspect_ratio

Sets the aspect ratio of the output video signal. The default setting is 0.

Syntax

```
#set_aspect_ratio param1
```

Parameters

param1 Aspect ratio [0 ... 3]

param1	Description
0	16:9
1	4:3
2	Stretch
3	Source

Example

```
#set_aspect_ratio 1  
ASPECT RATIO SET TO 4:3
```

Related Commands

```
#get_aspect_ratio
```

#set_brightness

Sets the brightness of the output video signal. The default setting is 50.

Syntax

```
#set_brightness param1
```

Parameters

<i>param1</i>	Brightness	[0 ... 100]
---------------	------------	-------------

Example

```
#set_brightness 58  
PICTURE BRIGHTNESS SET TO 58
```

Related Commands

```
#get_brightness  
#set_color_balance  
#set_color_range  
#set_contrast  
#set_hue
```

#set_color_balance

Sets the color balance of the output video signal.

Syntax

```
#set_color_balance param1 param2
```

Parameters

param1 Color channel [0 ... 2]

param1	Description
0	Red
1	Green
2	Blue

param2 Intensity [0 ... 100]

Example

```
#set_color_balance 1 90
PICTURE COLOR BALANCE Green Channel SET TO 90
```

Related Commands

```
#get_color_balance
#set_color_range
#set_color_temp
```

#set_color_range

Sets the color range of the output video signal.

Syntax

```
#set_color_range param1
```

Parameters

param1 Color range [0 ... 1]

param1	Description
0	Full (0 - 255)
1	Limited (16 - 235)

Example

```
#set_color_range 1  
PICTURE COLOR RANGE SET TO Limited
```

Related Commands

```
#get_color_range  
#set_color_balance  
#set_color_temp
```

#set_color_temp

Sets the color temperature of the output video signal.

Syntax

```
#set_color_temp param1
```

Parameters

param1 Color temperature [0 ... 2]

param1	Description
0	Warm
1	Neutral
2	Cool

Example

```
#set_color_temp 2  
PICTURE COLOR TEMPERATURE SET TO Cool
```

Related Commands

```
#get_color_temp  
#set_color_balance  
#set_color_range
```

#set_contrast

Sets the contrast of the output video signal.

Syntax

```
#set_contrast param1
```

Parameters

<i>param1</i>	Contrast	[0 ... 100]
---------------	----------	-------------

Example

```
#set_contrast 40  
PICTURE CONTRAST SET TO 40
```

Related Commands

```
#get_contrast  
#set_brightness  
#set_hue  
#set_saturation
```

#set_display_notify

Enables / disables the input/output resolution information dialog. When set to On, the input/output resolution information dialog will be displayed, momentarily, whenever the source is disconnected / reconnected to the VGA to DVI Scaler/Converter or if a change to the output is made. When set to Off, the information dialog will not be displayed.

Syntax

```
#set_display_notify param1
```

Parameters

param1 State [0 ... 1]

param1	Description
0	Off
1	On

Example

```
#set_display_notify 1  
DISPLAY NOTIFICATIONS SET TO On
```

Related Commands

```
#get_display_notify
```

#set_edge_enhance

Sets the picture edge enhancement (sharpness) threshold. The Mid and Max settings are sharpness presets. To set the sharpness to a specific setting, set *param1* = 3, then use the #set_sharpness command to set the sharpness value.

Syntax

```
#set_edge_enhance param1
```

Parameters

param1 Edge detail [0 ... 3]

param1	Description
0	Off
1	Mid
2	Max
3	User

Example

```
#set_edge_enhance 2  
PICTURE EDGE ENHANCEMENT SET TO Max
```

Related Commands

```
#get_edge_enhance  
#set_sharpness
```

#set_horizontal_mirror

Enables or disables horizontal mirroring. When set to *on*, the output image is flipped horizontally.

Syntax

```
#set_horizontal_mirror param1
```

Parameters

param1 State [0 ... 1]

param1	Description
0	Off
1	On

Example

```
#set_horizontal_mirror 1  
HORIZONTAL MIRROR SET TO On
```

Related Commands

```
#get_horizontal_mirror  
#get_video_settings  
#set_vertical_mirror
```

#set_horizontal_shift

Adjusts the horizontal position of the output image.

Syntax

```
#set_horizontal_shift param1
```

Parameters

<i>param1</i>	Horizontal shift	[-100 ... 100]
---------------	------------------	----------------

Example

```
#set_horizontal_shift -20  
HORIZONTAL SHIFT IS SET TO -20
```

Related Commands

```
#get_horizontal_shift  
#get_video_settings  
#set_vertical_shift
```

#set_horz_active

Sets the number of active horizontal pixels and saves it to the specified preset.

Syntax

```
#set_horz_active param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_active 1280 1
HORIZONTAL ACTIVE 1280 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_back_porch
#set_horz_front_porch
#set_horz_scan_rate
#set_horz_sync_polarity
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_back_porch

Sets the horizontal back porch and saves it to the specified preset.

Syntax

```
#set_horz_back_porch param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_back_porch 220 1
HORIZONTAL BACK PORCH 220 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_front_porch
#set_horz_scan_rate
#set_horz_sync_polarity
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_front_porch

Sets the horizontal front porch and saves it to the specified preset.

Syntax

```
#set_horz_front_porch param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_front_porch 110 1
HORIZONTAL FRONT PORCH 110 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_scan_rate
#set_horz_sync_polarity
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_scan_rate

Sets the horizontal scan rate and saves it to the specified preset. *param1* is a floating-point value and can be specified up to three decimal places.

Syntax

```
#set_horz_scan_rate param1 param2
```

Parameters

<i>param1</i>	Scan rate (kHz)	[0.000 ... 999.000]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_scan_rate 45 1
HORIZONTAL SCAN RATE 45 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_sync_polarity

Sets the horizontal sync polarity and saves it to the specified preset.

Syntax

```
#set_horz_sync_polarity param1 param2
```

Parameters

param1 State [0 ... 1]

param1	Description
0	Negative
1	Positive

param2 Preset [0 ... 5]

Example

```
#set_horz_sync_polarity 1 1
HORIZONTAL SYNC POLARITY POSITIVE SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_sync_width

Sets the horizontal sync width in pixels and saves it to the specified preset.

Syntax

```
#set_horz_sync_width param1 param2
```

Parameters

<i>param1</i>	Width (pixels)	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_sync_width 40 1
HORIZONTAL SYNC WIDTH 40 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_scan_rate
#set_horz_sync_polarity
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_horz_total

Sets the total number of horizontal pixels and saves it to the specified preset.

Syntax

```
#set_horz_total param1 param2
```

Parameters

<i>param1</i>	Total (pixels)	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_horz_total 1650 1
HORIZONTAL TOTAL 1650 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_hue

Sets the picture hue of the output video signal.

Syntax

```
#set_hue param1
```

Parameters

<i>param1</i>	Hue	[0 ... 100]
---------------	-----	-------------

Example

```
#set_hue 60  
PICTURE HUE SET TO 60
```

Related Commands

```
#get_hue  
#set_brightness  
#set_contrast  
#set_saturation
```

#set_osd_timeout

Sets the OSD (On-Screen Display) time-out delay in seconds. If param1 = 0, then the OSD timeout will be set to "off". The OSD will be displayed until it is exited, manually. See [Moving around within the Menu System \(page 9\)](#) for more information on how to manually exit the menu system.

Syntax

```
#set_osd_timeout param1
```

Parameters

<i>param1</i>	Timeout	[0, 5 ... 60]
---------------	---------	---------------

Example

```
#set_osd_timeout 10  
OSD TIMEOUT IS SET TO 10 SECONDS
```

Related Commands

```
#get_osd_timeout
```

#set_output_res

Sets the output resolution. Resolutions that use reduced-blanking are indicated with "(RB)". Note the following frequency information: 23 = 23.98, 29 = 29.97, and 59 = 59.94.

Syntax

```
#set_output_res param1
```

Parameters

param1 Resolution [0 ... 44]

param1	Description
0	640 x 480 / 60 Hz
1	640 x 480 / 75 Hz
2	800 x 600 / 60 Hz
3	800 x 600 / 75 Hz
4	1024 x 768 / 60 Hz
5	1024 x 768 / 75 Hz
6	1280 x 768 / 60 Hz
7	1280 x 800 / 60 Hz
8	1280 x 1024 / 60 Hz
9	1280 x 1024 / 75 Hz
10	1360 x 768 / 60 Hz
11	1366 x 768 / 60 Hz
12	1440 x 900 / 60 Hz
13	1440 x 900 / 75 Hz
14	1400 x 1050 / 60 Hz
15	1680 x 1050 / 60 Hz
16	1680 x 1050 (RB)
17	1920 x 1080 (RB)
18	1920 x 1200 / 60 Hz
19	1920 x 1200 (RB)
20	Bypass
21	Auto-Detect

(continued on next page)

param1	Description
22	SD (480i) / 60 Hz
23	SD (576i) / 50 Hz
24	SD (480p) / 60 Hz
25	SD (576p) / 50 Hz
26	HD (720p) / 60 Hz
27	HD (720p) / 59 Hz
28	HD (720p) / 50 Hz
29	HD (720p) / 30 Hz
30	HD (720p) / 29 Hz
31	HD (720p) / 25 Hz
32	HD (1080i) / 60 Hz
33	HD (1080i) / 59 Hz
34	HD (1080i) / 50 Hz
35	HD (1080p) / 60 Hz
36	HD (1080p) / 59 Hz
37	HD (1080p) / 50 Hz
38	HD (1080p) / 30 Hz
39	HD (1080p) / 29 Hz
40	HD (1080p) / 25 Hz
41	HD (1080p) / 24 Hz
42	HD (1080p) / 23 Hz
43	2048x1080 / 60 Hz
44	2048x1080 / 50 Hz

Example

```
#set_output_res 2
OUTPUT RESOLUTION SET TO 800x600 60Hz
```

Related Commands

```
#get_output_res
```

#set_phase

Sets the phase adjustment. The default setting is “Auto”.

Syntax

```
#set_phase param1
```

Parameters

<i>param1</i>	Phase	[Auto, 1 ... 64]
---------------	-------	------------------

Example

```
#set_phase 26  
PHASE SET TO 26
```

Related Commands

```
#get_phase
```

#set_pixel_clock

Sets the pixel clock and saves it to the specified preset. *param1* is a floating-point value and can be specified up to three decimal places.

Syntax

```
#set_pixel_clock param1 param2
```

Parameters

<i>param1</i>	Pixel clock	[0.000 ... 999.000]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_pixel_clock 74.25 1
PIXEL CLOCK 74.25 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_saturation

Sets the picture saturation.

Syntax

```
#set_saturation param1
```

Parameters

<i>param1</i>	Saturation	[0 ... 100]
---------------	------------	-------------

Example

```
#set_saturation 65  
PICTURE SATURATION SET TO 65
```

Related Commands

```
#set_brightness  
#set_contrast  
#set_hue
```

#set_sharpness

Sets the picture saturation. In order to set the sharpness value, the Edge Enhance setting must be set to User. Refer to the [#set_edge_enhance](#) command for details.

Syntax

```
#set_sharpness param1
```

Parameters

<i>param1</i>	Sharpness	[0 ... 100]
---------------	-----------	-------------

Example

```
#set_sharpness 68  
PICTURE SHARPNESS SET TO 68
```

Related Commands

[#set_edge_enhance](#)

#set_test_patterns

Enables / disables or sets the test pattern.

Syntax

```
#set_test_patterns param1
```

Parameters

param1 Pattern [0 ... 6]

param1	Description
0	White
1	Cross
2	Hatch
3	Color
4	Gray
5	Window
6	Off

Example

```
#set_test_patterns 2
TEST PATTERNS SET TO Hatch
```

Related Commands

```
#get_test_patterns
```

#set_uo_scan

Adjusts the underscan / overscan of the output image. The default value is 0. Negative values produce an “underscanned” image. Positive values produce an “overscanned” image.

Syntax

```
#set_uo_scan param1
```

Parameters

<i>param1</i>	Amount (%)	[-50 ... 50]
---------------	------------	--------------

Example

```
#set_uo_scan 10  
UNDER/OVER SCAN SET TO 10%
```

Related Commands

```
#get_uo_scan
```

#set_vert_active

Sets the vertical active pixels and saves it to the specified preset.

Syntax

```
#set_vert_active param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_active 720 1
VERTICAL ACTIVE 720 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_vert_back_porch

Sets the vertical back porch and saves it to the specified preset.

Syntax

```
#set_vert_back_porch param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_back_porch 20 1
VERTICAL BACK PORCH 20 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_vert_front_porch

Sets the vertical front porch and saves it to the specified preset.

Syntax

```
#set_vert_front_porch param1 param2
```

Parameters

<i>param1</i>	Pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_front_porch 5 1
VERTICAL FRONT PORCH 5 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_refresh_rate
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_vert_refresh_rate

Sets the vertical refresh rate and saves it to the specified preset. *param1* is a floating-point value and can be specified up to three decimal places.

Syntax

```
#set_vert_refresh_rate param1 param2
```

Parameters

<i>param1</i>	Refresh rate	[0.000 ... 9999.000]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_refresh_rate 60 1
VERTICAL REFRESH RATE 60 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_sync_polarity
#set_vert_sync_width
#set_vert_total
```

#set_vert_sync_polarity

Sets the vertical sync polarity and saves it to the specified preset.

Syntax

```
#set_vert_sync_polarity param1 param2
```

Parameters

param1 Polarity [0 ... 1]

param1	Description
0	Negative
1	Positive

param2 Preset [0 ... 5]

Example

```
#set_vert_sync_polarity 1 1
VERTICAL SYNC POLARITY POSITIVE SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_refresh_rate
#set_vert_sync_width
#set_vert_total
```

#set_vert_sync_width

Sets the vertical sync width and saves it to the specified preset.

Syntax

```
#set_vert_sync_width param1 param2
```

Parameters

<i>param1</i>	Sync width	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_refresh_rate 5 1
VERTICAL SYNC WIDTH 5 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_sync_polarity
#set_vert_refresh_rate
#set_vert_total
```

#set_vert_total

Sets the total number of vertical pixels and saves it to the specified preset.

Syntax

```
#set_vert_total param1 param2
```

Parameters

<i>param1</i>	Total pixels	[0 ... 9999]
<i>param2</i>	Preset	[0 ... 5]

Example

```
#set_vert_total 750 1
VERTICAL TOTAL 750 SAVED TO PRESET 2
```

Related Commands

```
#get_timing_preset
#set_horz_active
#set_horz_back_porch
#set_horz_front_porch
#set_horz_sync_polarity
#set_horz_scan_rate
#set_horz_sync_width
#set_horz_total
#set_pixel_clock
#set_vert_active
#set_vert_back_porch
#set_vert_front_porch
#set_vert_sync_polarity
#set_vert_refresh_rate
#set_vert_sync_width
```

#set_vertical_mirror

Enables or disables vertical mirroring. When set to *on*, the output image is flipped vertically.

Syntax

```
#set_vertical_mirror param1
```

Parameters

param1 State [0 ... 1]

param1	Description
0	Off
1	On

Example

```
#set_vertical_mirror 1  
VERTICAL MIRROR SET TO On
```

Related Commands

```
#get_vertical_mirror  
#get_video_settings  
#set_horizontal_mirror
```

#set_vertical_shift

Adjusts the vertical position of the output image.

Syntax

```
#set_vertical_shift param1
```

Parameters

<i>param1</i>	Vertical shift	[-100 ... 100]
---------------	----------------	----------------

Example

```
#set_vertical_shift -10  
VERTICAL SHIFT IS SET TO -10
```

Related Commands

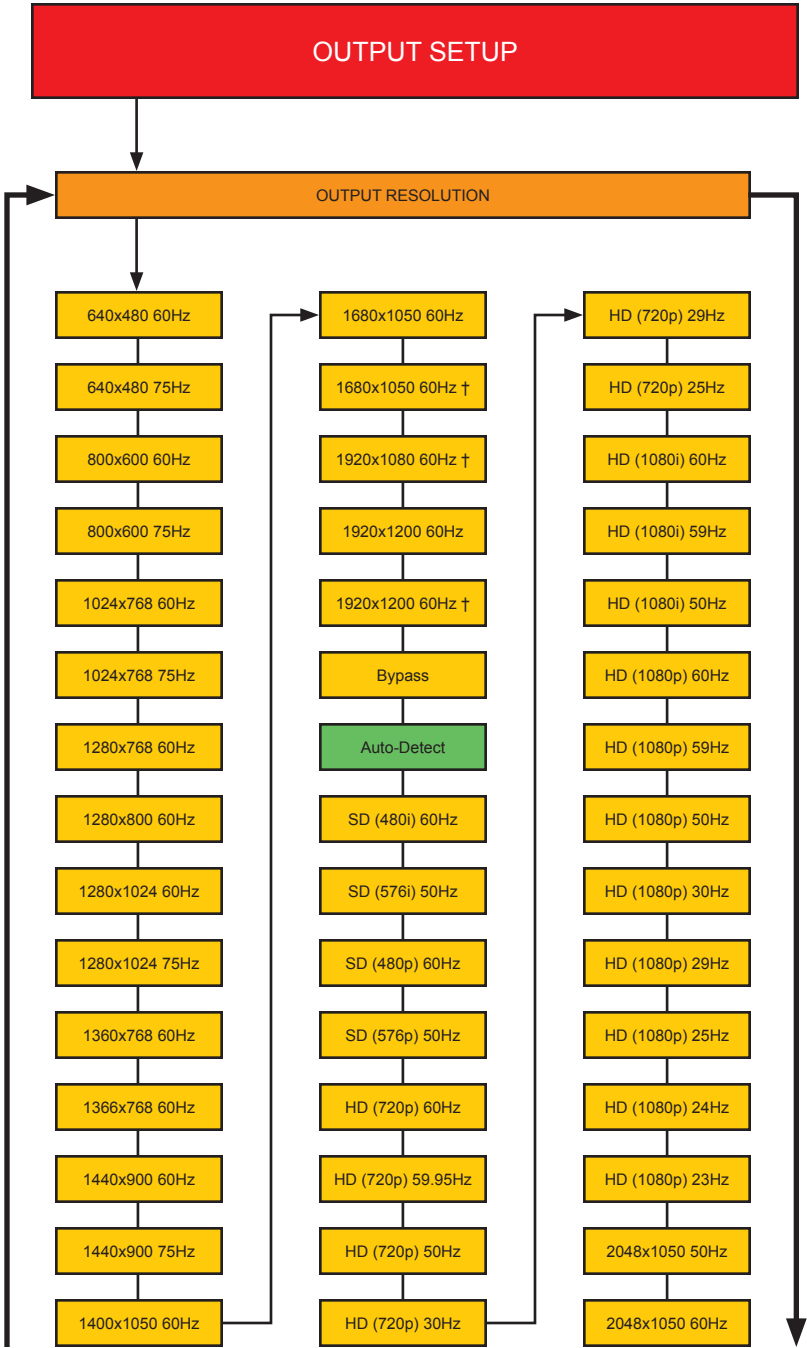
```
#get_vertical_shift  
#get_video_settings  
#set_horizontal_shift
```


VGA to DVI Scaler/Converter

4

Appendix

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**Important**

Note the following frequency information:

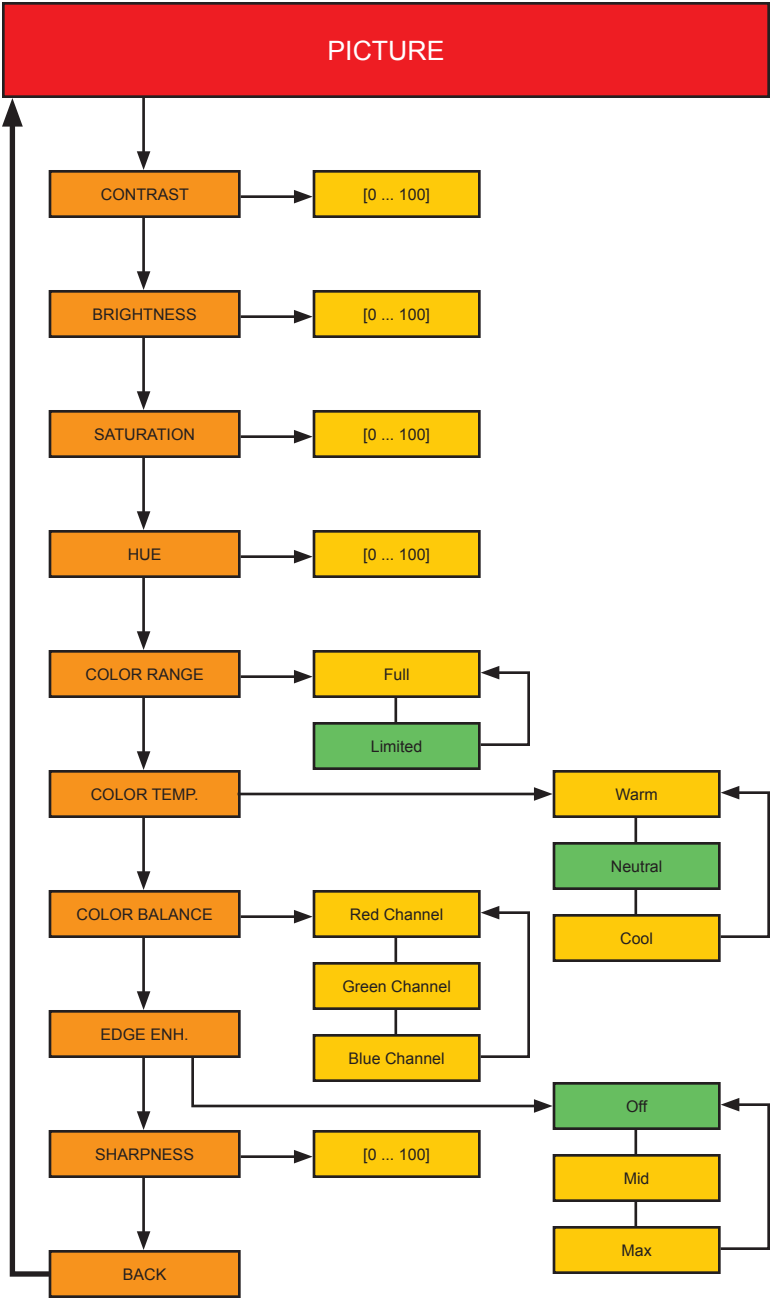
23 Hz = 23.98 Hz

29 Hz = 29.97 Hz

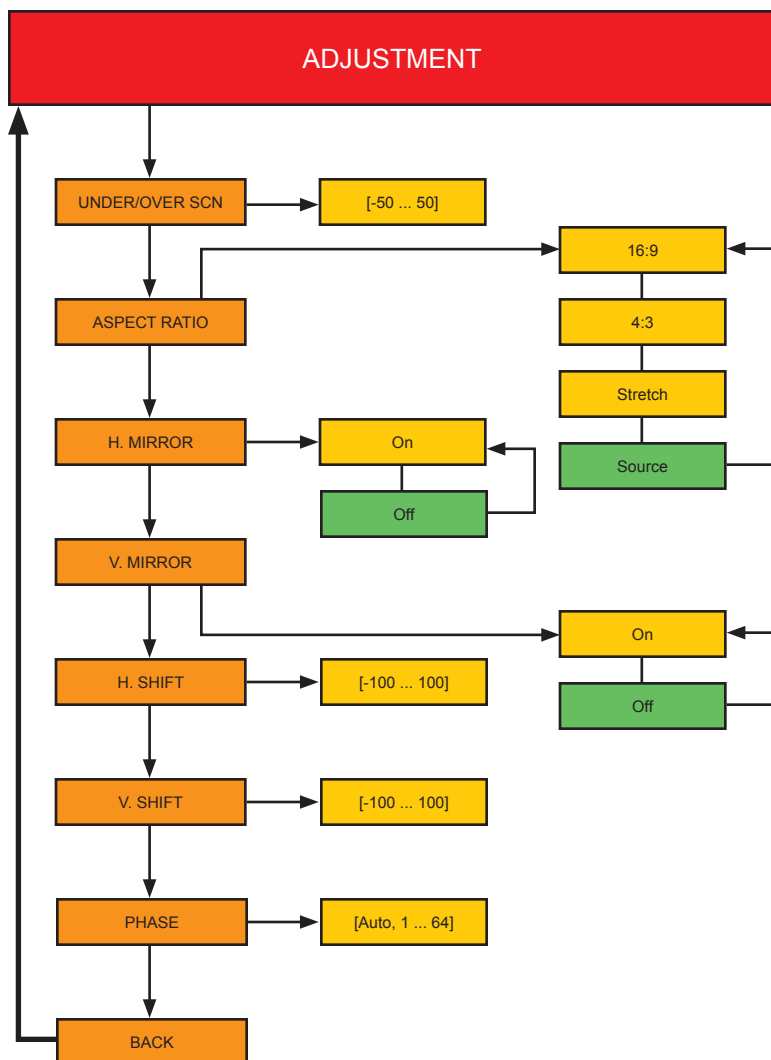
59 Hz = 59.94 Hz

† Denotes output resolution that supports reduced blanking.

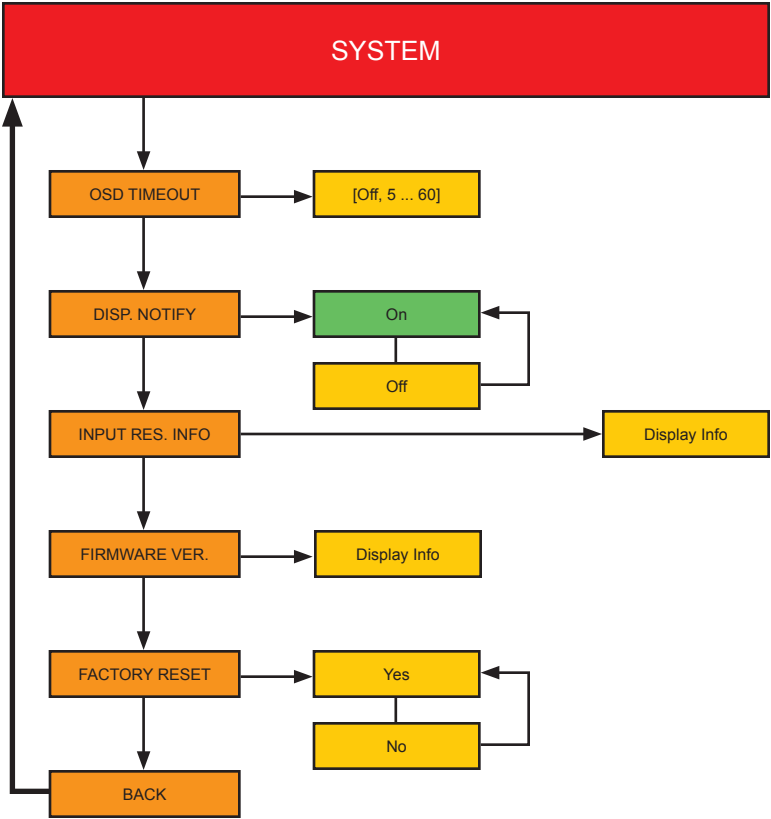
Boxes in green indicate the default setting.



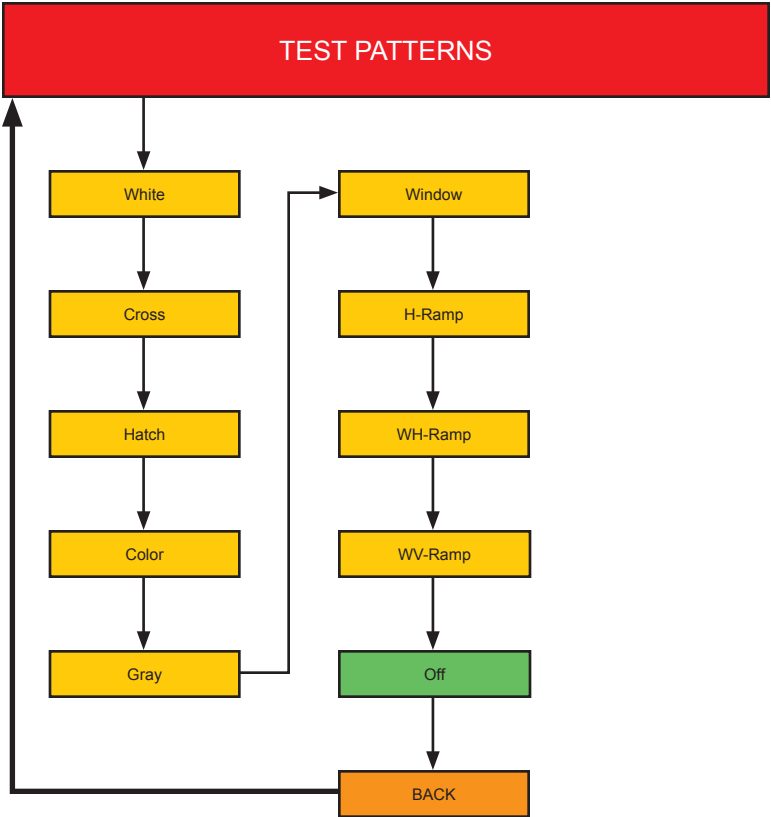
Boxes in green indicate the default setting.



Boxes in green indicate the default setting.



Boxes in green indicate the default setting.



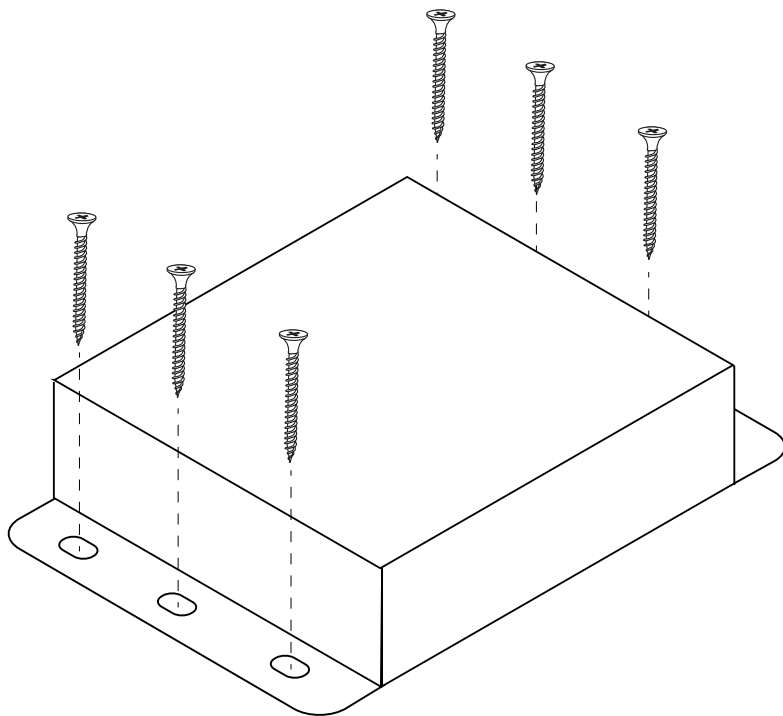
Boxes in green indicate the default setting.



Setting	Value
Aspect Ratio	Source
Brightness	50
Color Balance (Blue Channel)	50
Color Balance (Green Channel)	50
Color Balance (Red Channel)	50
Color Range	Limited
Color Temperature	Neutral
Contrast	50
Display Notifications	On
Edge Enhancement	Off
Horizontal Mirror	Off
Horizontal Shift	Off
Hue	50
OSD Timeout	5 seconds
Output Resolution	Auto-Detect
Phase	Auto
Saturation	50
Sharpness	0
Test Patterns	Off
Under/Over Scan	Off
Vertical Mirror	Off
Vertical Shift	Off

The VGA to DVI Scaler/Converter can be mounted on any flat surface, as shown below (screws not included). There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for connection and disconnection of the VGA and DVI cables.

For installation on a drywall surface, use a #6 drywall screw. When installing, it is recommended to use the center hole on a stud.



Connectors, Controls, and Indicators

Video Input	• 1 x VGA HD-15, female
Video Output	• 1 x DVI 29-pin, female (digital only)
Power Receptacle	• 3-pin, locking
USB	• 1 x USB Mini-B, female
Menu	• 1 x push button, tact-type
Up	• 1 x push button, tact-type
Dn	• 1 x push button, tact-type
Power Indicator	• 1 x LED, blue

Operational

Maximum Pixel Clock	• 165 MHz
Maximum TMDS Clock	• 165 MHz
Power Input	• 12V DC (nominal) 6V to 24V operating range
Power Consumption	• 2W (max.)
Operating Temperature	• +32 to +122 °F (0 to +50 °C)
Operating Humidity	• 5% to 90% RH, non-condensing
Storage Temperature	• -4 to +185 °F (-20 to +85 °C)
Storage Humidity	• 0% to 95% RH, non-condensing
MTBF	• 50000 Hours

Physical

Dimensions (W x H x D)	• 4.9" x 1" x 3.2" (123mm x 26mm x 82mm)
Unit Weight	• 0.4 lbs (0.2 kg)

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Active pixels

horizontal 89*vertical* 106

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