NEXIS

# SL-DVY2D

## DVI/PC/HD to DVI/PC Scaler




# Operation Manual

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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

## REVISION HISTORY

| VERSION NO. | DATE DD/MM/YY | SUMMARY OF CHANGE |
|---|---|---|
| VR0 | 17/10/13 | Preliminary Release |
| VS1 | 01/04/14 | Updated Text/Diagrams |
| VR2 | 16/07/14 | Updated Output Resolutions |

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## 1. INTRODUCTION

This DVI/PC/HD to DVI/PC Scaler is capable of scaling and source-switching from PC (VGA), Component Video (SD/HD) and DVI input signals to analog PC (VGA) and digital DVI outputs. It has the added benefit of control through front panel buttons and IR Remote, and there is on-screen menu (OSD) providing setting selection and system information. The device provides a full range of output resolutions, up to 1080p for HDTV resolutions, and WUXGA (RB) for PC resolutions making it ideal for use in professional large screen presentation applications.

## 2. APPLICATIONS

- Analog to Digital video signal conversion
- Analog and Digital source integration
- Upscale Standard definition video for High-Definition displays

## 3. PACKAGE CONTENTS

- DVI/PC/HD to DVI/PC Scaler
- VGA Cable (D-sub 15-pin connector)
- Component Video Cable (3 RCA to 3 RCA connectors)
- IR Remote Control (CR-27)
- 5V/2.6A DC Power Supply Adaptor
- Operation Manual

## 4. REQUIREMENTS

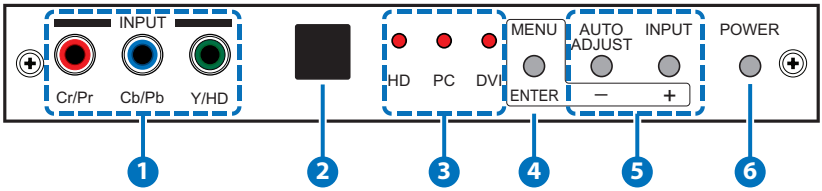
Source equipment such as a PC/Laptop with a D-sub 15-pin (VGA) or DVI output, or a DVD Player with Component Video output and Display/Monitor with a DVI or D-sub 15-pin (VGA) input.

## 5. FEATURES

- Supports PC/RGB (up to WUXGA RB), Component Video/HD (480i to 1080p) and DVI (up to WUXGA) inputs to be scaled to analog PC and digital DVI outputs (up to 1080p/WUXGA RB)
- Supports analog PC or SD/HD input in RGBHV, YPbPr/YCbCr or digital DVI formats
- Supports digital DVI and analog PC output resolutions from 480i to 1080p and VGA to WUXGA(RB)
- DVI input is fully DVI and HDCP compliant
  *Note: If the input is HDCP encrypted then DVI output is also HDCP encrypted. There is no analog PC output for HDCP encrypted content.*
- 'NATIVE' output resolution ensures the most optimal display resolution for user's screen
  *Note: When 'NATIVE' is selected as the output resolution, the Scaler will automatically detect the native resolution of the display and set the optimal resolution to match the display's optimum output resolution.*
- Supports automatic detection of input resolutions
- Supports selection of the output resolutions and refresh rates
- Supports adjustment of brightness, contrast, color, RGB level, and Horizontal/Vertical position for the output signal
- Supportss advanced features such as Noise Reduction and Overscan/Underscan adjustments
- Supports OSD menu, front panel buttons or IR remote controls

# 6. OPERATION CONTROLS AND FUNCTIONS

## 6.1 Front Panel




1. **COMPONENT INPUT:** Connect to the Component output of a source device with the supplied 3 RCA to 3 RCA cable.

   The Scaler accepts both interlaced Component input (480i/576i) and progressive input (480p/576p/1080p). The input range is from 480i, 570i to 1080i/1080p.

2. **IR WINDOW:** Receives only the IR signal from the supplied remote control.

3. **INPUT LEDs:** An LED will illuminate to indicate the currently selected source.

4. **MENU:** Press this button to bring up the main OSD menu (see Section 6.4).

   **ENTER:** When in the OSD menu, it acts as a 'Enter' key to enter the sub menu or to confirm the value of the selected parameter.

5. **AUTO ADJUST:** Press this button to perform automatic picture adjustment for analog inputs (Component Video or PC). This function will fine tune the screen position (centering) and color of the output image.

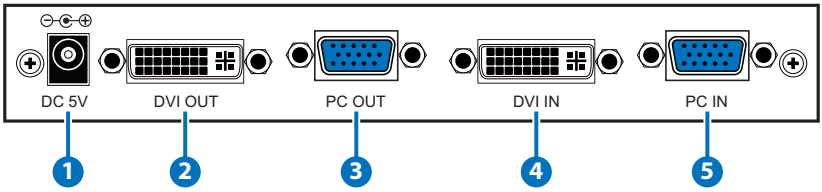
   **INPUT:** Repeatedly press this button to cycle through the input sources in the following sequence:

   YPbPr (YCbCr) → PC → DVI

   **Minus (-)/Plus (+):** When in the OSD menu mode, press the '+' or '-' button to navigate up or down the menu to the required setting or once a setting is selected with the MENU/Enter button, press the button to adjust setting value of your selected parameter.

6. **POWER:** Press the button to power the Scaler ON or to turn it OFF (standby).

## 6.2 Rear Panel




1. **DC 5V:** Connect the 5V DC power supply to the Scaler and plug the adaptor into an AC wall outlet.

2. **DVI OUT:** Scaled digital DVI output. Connect to the DVI input or HDMI input (with a DVI to HDMI adaptor) of your digital display.

   *Note: When the DVI input signal is HDCP encrypted, the DVI output is also be HDCP encrypted. The monitor/display that is connected to this output also need to be HDCP compliant. A non-HDCP compliant display will not display signals that are HDCP encrypted.*

3. **PC OUT:** Scaled analog RGB output. Connect to the VGA input of your analog monitor with a D-sub 15-pin cable, or connect to the RGBHV input of your HD display with a D-sub 15-pin to 5 BNC adaptor cable.

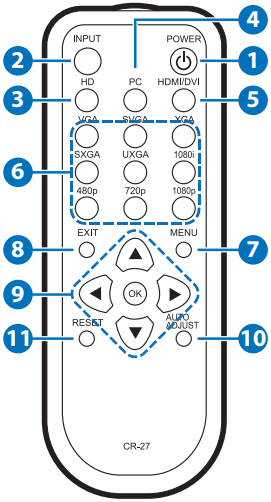
   *Note: When the DVI input is HDCP encrypted there is no analog output from the PC OUT.*

4. **DVI IN:** Connect to the DVI output of your DVI source equipment. The DVI input should be digital DVI signal only and should not include an analog RGB signal. It can accept resolutions from 480i to 1080p, or VGA to WUXGA(RB).

   *Note: The use of DVI-I connector is to ensure that both of the DVI-I or DVI-D male connectors of a DVI cable can physically fit the input connector.*

5. **PC IN:** Connect to the VGA output of your PC or laptop with a D-sub 15-pin cable. It can accept resolutions from VGA to WUXGA(RB).

## 6.3 Remote Control




1. **POWER:** Press the button once to power ON the Scaler. Press again to enter standby mode.
2. **INPUT:** Press the button repeatedly to toggle through the different input sources
3. **HD:** Press to directly select the component input.
4. **PC:** Press to directly select the PC input.
5. **HDMI/DVI:** Press the button to select DVI (or HDMI) input.
6. **RESOLUTIONS:** Press the required button to directly switch to that output resolution. For other resolutions that are not covered by these buttons please enter the OSD Menu and use the Output page to select them (See Section 6.4).
7. **MENU:** Press to enter the OSD main menu.
8. **EXIT:** Press the button to exit from a sub menu or main menu.
9. **DIRECTIONAL KEYS:** Press the Up/Down button to navigate the OSD Menu to your desired setting during the OSD operation. Press the Left/Right button to increase or decrease the value of a selected setting.

   **OK (ENTER):** Press the button to confirm your selection.
10. **AUTO ADJUST:** Press to perform automatic picture adjustment for analog inputs (component or PC). This function will fine tune the screen position (centering) and color of the output image.
11. **RESET:** Press the button to reset the Scaler's firmware setting to the factory default value.

## 6.4 OSD Menu

| 1ST LAYER | 2ND LAYER | 3RD LAYER |
|---|---|---|
| VIDEO | Picture Mode[*1] | Standard |
| | | Vivid |
| | | Movie |
| | | User[*2] |
| | Contrast | 1-100 |
| | Brightness | 1-100 |
| | Hue | 1-100 |
| | Saturation | 1-100 |
| | Sharpness | 1-100 |
| | ***H-Position***[*3] | 1-100 |
| | ***V-Position***[*3] | 1-100 |
| | ***Clock***[*4] | 1-100 |
| | ***Phase***[*4] | 0-63 |
| | Scale[*5] | Full |
| | | Overscan |
| | | Underscan |
| | | Letterbox |
| | | Panscan |
| | NR[*6] | Off |
| | | High |
| | | Middle |
| | | Low |
| | Exit | |

| 1ST LAYER | 2ND LAYER | 3RD LAYER |
|---|---|---|
| COLOR | Color Tone[*7] | Normal |
| | ***(Color Temp[*7])*** | Warm |
| | | Cool |
| | | User |
| | RED | |
| | GREEN | |
| | BLUE | |
| | Exit | |
| OUTPUT[*8] | VGA | |
| | SVGA | |
| | XGA | |
| | SXGA/SXGA+ | |
| | UXGA | |
| | WXGA/WXGA+ | |
| | WSXGA | |
| | WUXGA | |
| | 480I/480P | |
| | 576I/576P | |
| | 720P50/60 | |
| | 1080I50/60 | |
| | 1080P50/60 | |
| | NATIVE | |
| | Exit | |

| 1ST LAYER | 2ND LAYER | 3RD LAYER |
|---|---|---|
| OSD[*9] | H-Position | 1-100 |
| | V-Position | 1-100 |
| | Timeout | 1-100 |
| | Background | 0-8 |
| | Exit | |
| INFORMATION[*10] | SOURCE | |
| | INPUT | |
| | OUTPUT | |
| | VERSION | |

*Note: Settings in **Bold Italic** are available for the PC input only.*

## *1. Picture Mode*

**Standard:** Standard default settings for optimal display in a normal environment.

**Vivid:** Highly saturated picture for optimal display in a bright room.

**Movie:** Picture for comfortable low brightness display in a dark room.

**User:** Select to use your own preset custom settings.

## *2. User Picture Mode*

To adjust the picture quality, use '+' or '-' buttons on the front panel or the directional buttons on the IR Remote to navigate to the required setting (Brightness, Contrast, etc.) and then press 'Enter' to confirm your selection.

The selected setting will turn red, use '+' or '-' buttons to increase or decrease the value of the setting as required. When the adjustment is complete, press the 'Enter' button to leave the setting.

Select 'Exit', and then press 'Enter' to exit.

## *3. H and V Position*

Adjusts the horizontal and vertical position of the picture in the screen.

*Note: The 'H-Position' and 'V-Position' settings are only available when the Component or PC input is selected. These settings are not available when the DVI input is selected.*

## *4. Clock and Phase*

Adjusts the pixel clock and phase of the picture on the screen.

*Note: These 'Clock' and 'Phase' settings are only available when the*

*Component or PC input is selected. These settings are not available when the DVI input is selected.*

## 5. Scale

Selects 'Overscan' when the input source is SD or HD video to ensure that there are no black borders around the screen.

Selects 'Underscan' when the input source is PC to ensure that the full picture is shown on screen.

## 6. Noise Reduction

Removes noise that results from analog-to-digital conversion and digital scaling processing.

*Note: This function only works for analog RGB or component inputs. It will not work for DVI input.*

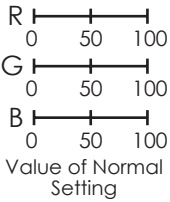
## 7. Color Tone or Color Temp

**Normal:** Normal color tone setting where white is pure white.

**Warm:** Warm color tone, pushes white towards warm/red tones.

**Cool:** Cool color, pushes white towards cold/blue tones.

**User:** Select to adjust to your own preset color temperature setting.




## 8. Output

The Scaler can output a wide variety of PC and HD resolutions, refer to Section 8.2 for details.

## 9. OSD Menu Adjust

**H-Position:** Adjusts the horizontal position of the OSD menu.

**V-Position:** Adjusts the vertical position of the OSD menu.

**Timeout:** Sets a predetermined time to before the OSD menu is removed from the screen.

**Background:** Selects transparent or solid background of OSD menu.

## 10. Information

**Source:** Displays the selected input source.

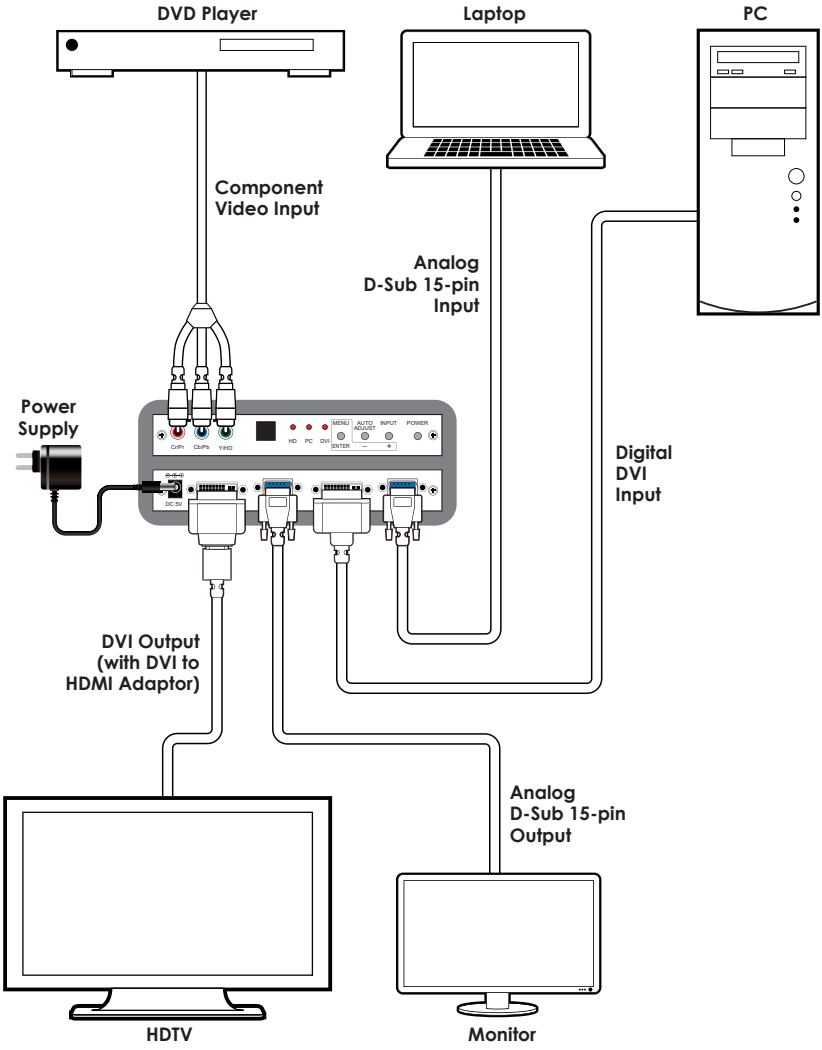
**Input:** Displays the input resolution e.g. XGA.

**Output**: Displays the output resolution e.g. 720p.

**Version:** Displays the firmware version.

# 7. CONNECTION DIAGRAM

## 7.1 Connection Diagram



## 7.2 Input Connections

The Scaler accepts Component, PC and DVI inputs. The formats supported by these inputs are as follows:

- When connecting to a PC source, use a D-sub 15-pin cable to connect the output of a PC to the D-sub input connector of the Scaler.
- When connecting to a Component source (either SD or HD resolution), use a 3 RCA to 3 RCA cable to connect the YPbPr or YCbCr output of a DVD player or Set-top Box to the Y-Cb/Pb-Cr/Pr input connecter on the front panel of the Scaler.
- When connecting to a DVI source, use a DVI-I or DVI-D cable to connect the DVI output of a PC or DVD to the DVI input connector of the Scaler.
- When connecting to a HDMI source, use a HDMI cable to connect to the HDMI output of a HDMI source, such as DVD player or Set-top Box, on the one end. And use a HDMI to DVI connector adaptor to connect to the other end of the HDMI cable. The DVI connector of the adaptor is then connect to the DVI input of the Scaler.

The Scaler can automatically detect the input resolution of all three inputs. To switch from one input source to another just press the 'INPUT' button on the front panel or on the remote control.

## 7.3 Output Connections

The Scaler can output a variety of PC, SD and HD resolutions in both digital and analog format simultaneously (see Section 8.2). The digital output is available from the DVI output connector while the analog output is available from the PC D-sub output connector.

# 8. SPECIFICATIONS

## 8.1 Technical Specifications

| | |
|---|---|
| **Input Ports** | 1×DVI, 1×PC (D-sub 15-pin connector), 1×YCbCr/YPbPr (3 RCA connectors) |
| **Output Ports** | 1×DVI, 1×PC (D-sub 15-pin connector) |
| **ESD Protection** | Human body model:<br>±8 kV (air-gap discharge)<br>±4 kV (contact discharge) |
| **Power Supply** | 5 V/2.6 A DC (US/EU standards, CE/FCC/UL certified) |
| **Dimension** | 180 mm (W)×124 mm (D)×25 mm(H)/Jacks Excluded<br>180 mm(W)×132 mm(D)×25 mm(H)/Jacks Included |
| **Weight** | 452 g |
| **Chassis Material** | Aluminum |
| **Silkscreen Color** | Silver |
| **Operating Temperature** | 0 °C ~ 40 °C |
| **Storage Temperature** | −20 ˚C ~ 60 ˚C / −4 ˚F ~ 140 ˚F |
| **Relative Humidity** | 20 ~ 90 % RH (non-condensing) |
| **Power Consumption** | 6 W |

## 8.2 Supported Resolutions

| Resolution<br>Input format (Up to 165 MHz) | INPUT | | |
|---|---|---|---|
| | Component | PC | DVI/HDMI |
| 480i/576i | ✓ | - | * |
| 480p/576p | ✓ | ✓ | ✓ |
| 720p@50/60 | ✓ | ✓ | ✓ |
| 1080i@50/60 | ✓ | - | ✓ |
| 1080p@50/60 | ✓ | ✓ | ✓ |
| VGA@60/72/75/85 | - | ✓ | ✓ |
| SVGA@56/60/72/75/85 | - | ✓ | ✓ |
| XGA@60/70/75/85 | - | ✓ | ✓ |
| SXGA@60/75/85 | - | ✓ | ✓ |
| UXGA@60 | - | ✓ | ✓ |
| WXGA@60 (1280×800) | - | ✓ | ✓ |
| WSXGA@60 (1680×1050) | - | ✓ | ✓ |
| WUXGA@60 (1920×1200) | - | ✓ | ✓ |

*480i@30×2 or 576i@25×2

| Resolution<br>Output format (Up to 165 MHz) | OUTPUT | |
|---|---|---|
| | PC | DVI/HDMI |
| 480i/576i | * | * |
| 480p/576p | ✓ | ✓ |
| 720p@50/60 | ✓ | ✓ |
| 1080i@50/60 | ✓ | ✓ |
| 1080p@50/60 | ✓ | ✓ |
| VGA@60 (640×480) | ✓ | ✓ |
| SVGA@60 (800×600) | ✓ | ✓ |
| XGA@60 (1024×768) | ✓ | ✓ |
| SXGA@60 (1280×1024) | ✓ | ✓ |
| UXGA@60 | - | ✓ |
| WXGA@60 (1280×800) | ✓ | ✓ |
| WSXGA@60 (1680×1050) | - | ✓ |
| WUXGA@60 (1920×1200) | - | ✓ |

*1440×480 or 1440×576

## 9. ACRONYMS

| ACRONYM | COMPLETE TERM |
|---|---|
| **COMP** | Component Video |
| **DVI** | Digital Visual Interface |
| **RGB** | Red Green Blue |
| **VGA** | Video Graphics Array |
| **UXGA** | Ultra Extended Graphics Array |
| **WUXGA** | Widescreen Ultra Extended Graphics Array |