



Instruction Manual

Video Scaler

**VGA to DVI Scaler
1T-VGA-DVI**

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1 INTRODUCTION

Thanks for purchasing this Video Scaler from TV One. The 1T-VGA-DVI scaler is designed to convert Analog RGB input (VGA) to either DVI or DVI-I (Digital or Digital with overlaid Analog RGB) output. Our professional video conversion products have been serving the industry for over twelve years. In addition to Video Scalers, TV One offers a full line of high quality Scan Converters, Genlock Adapters, Standards Converters, DV-to-Analog Converters, Digital Video Recorders, Time Base Correctors, LCD Monitors and Distribution Amplifiers.

1.1 Features

- Ultra Compact, High Performance Units
- Converts VGA to DVI-I Outputs
- The input may be Analog VGA or HDTV signals in RGBHV, YpbPr or YCbCR formats
- The output may be Digital (DVI), Analog VGA, or HDTV digital RGBHV bitstream plus Analog RGBHV, known as DVI-I
- Automatic Detection of Input Resolution
- DVI output provides low loss conversion of signals
- 48Mb Frame Memory
- Integral Picture Adjustments
- On Screen Display for Setup and Adjustment
- Rugged Metal Case
- Locking DC Power Connector for Security

1.2 Getting the Best Results

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

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

2 SPECIFICATIONS

Input Format	Analog RGBHV, YPbPr or YCbCr
Input Signal Levels	RGBHV: 0.7 V p-p, 75Ω , H/V: 3 to 5 p-p TTL, Y: 1 V p-p 75Ω, Pb/Cb, Pr/Cr: 0.7 V p-p 75Ω
Output Format	Digital RGBHV (DVI), Digital RGBHV + Analog RGBHV (DVI-I) or YPbPr (through DVI to HD15 Adaptor)
Output Signal	Digital Data Bitstream
Input Connector Type	HD15 Female VGA Connector
Output Connector Type	29 Pin DVI-I Connector
Control	Front Panel Buttons
Information Display	On Screen Display
Video Adjustments	Brightness, Contrast, Color, Red, Green, Blue
Weight	1.5 lbs (680 grams)
Dimensions – HxWxD	1" x 7" x 4" (25x175x100mm)
Power Source	100~240VAC to 5VDC@2.0A In-Plug Switching Adapter

Output Signal Specifications

PC Resolutions		Vert Rate	Format	Scan Type
VGA	640x480	60,72,75,85 Hz	RGBHV	Progressive
VESA85	640X480	85 Hz	RGBHV	Progressive
VGA70	720X400	70 Hz	RGBHV	Progressive
SVGA	800x600	60,72,75,85 Hz	RGBHV	Progressive
XGA	1024x768	60,70,75,85 Hz	RGBHV	Progressive
MAC	1152X864	70,75 Hz	RGBHV	Progressive
WXGA	1280x768	60 Hz	RGBHV	Progressive
1280A	1280X960	60 Hz	RGBHV	Progressive
SXGA	1280x1024	60,75 Hz	RGBHV	Progressive
HDTV Resolutions		Vert Rate	Format	Scan Type
480p	720x480	60Hz	YPbPr, RGBHV	Progressive
576p	720x576	50Hz	YPbPr, RGBHV	Progressive
720p	1280x720	60Hz	YPbPr, RGBHV	Progressive
1080i	1920x1080	60Hz	YPbPr, RGBHV	Pseudo Interlaced
Note 1				

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

3 CHECKING THE PACKAGE CONTENTS

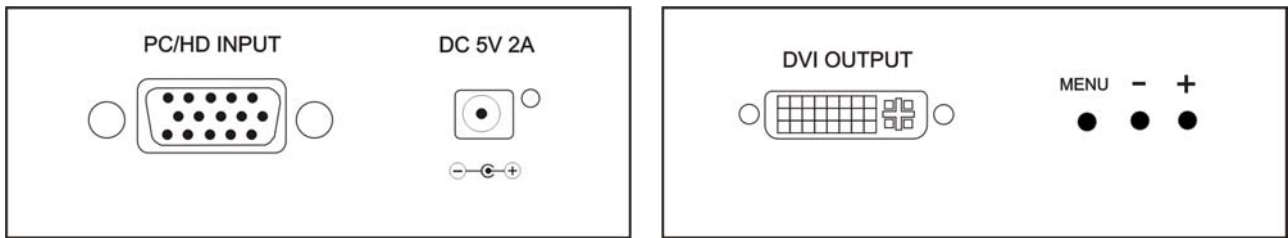
The following items are contained in shipping carton:

- 1T-VGA-DVI Scaler
- 100-240VAC AC/DC Power Adapter
- YPbPr 3 RCA to VGA Adapter Cable
- 6 Ft HD15M Cable
- 6 Ft DVI Cable
- User Manual

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

4 CONNECTING THE HARDWARE

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



1T-VGA-DVI

4.1 Connecting the Input

The 1T-VGA-DVI can accept both VGA and HDTV inputs. When connecting a VGA format input, use the provided HD15 cable. HDTV format inputs are made using the included YPbPr 3 RCA to VGA Adapter Cable. The 1T-VGA-DVI will automatically detect the mode and resolution of the PC/HDTV input.

Proper signal levels are very important to the operation of this product so make sure your inputs are of the levels specified on page 5. If improper operation of the unit occurs and the unit has power, the most likely cause of the problem is high or low signal levels or the use of a wrong input cable.

4.2 Connecting the Output

The 1T-VGA-DVI Video Scaler can output a wide variety of PC and HDTV resolutions.

To use the device with a DVI capable monitor or display, connect the supplied DVI cable to the unit's DVI output connector and the device's DVI input connector then select DVI-D from the OSD menu. This is the standard configuration for the device.

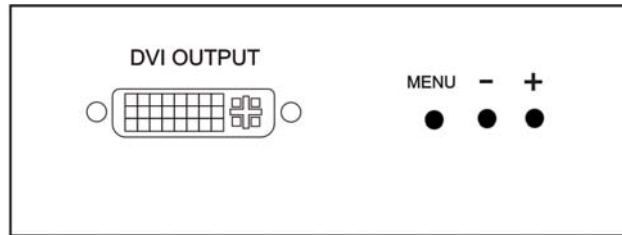
Note that the 1T-VGA-DVI has a DVI-A output mode that could be used to feed an analog monitor however this type of output would be only be used when a frequency and refresh rate conversion is required. Since this usage is rare at best, the required adaptor is not furnished.

4.3 Connecting Power to the Unit

The Video Scaler is shipped with an In-Plug Power Adapter to convert 100~240VAC@50-60Hz to 5VDC. Connect the DC Output Cord from the Power Adapter to the back of the unit and then plug the Power Adapter into an AC Receptacle. When the unit's front panel Power Switch is turned On, the Power LED indicator will illuminate.

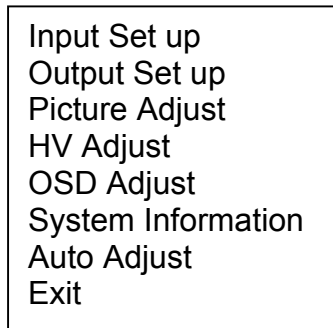
5 CONTROLLING THE 1T-VGA-DVI

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



- **Menu Button:** This Button displays the Menu Options via the On Screen Display on the display device connected to the output.
- **+ and - Buttons:** These Buttons allow navigation within the Menu and adjustments of the parameters available.
- **XGA Reset:** Simultaneously depressing the – and + buttons returns settings to factory defaults and sets the output to XGA@60 Hz.

Pressing the Menu Button results brings up the Initial or **Main Menu**. Move the cursor to the desired setup option by using the + and – buttons. When you reach the option you desire, press the Menu Button again to call up that option.



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

5.1 OSD Menu

If you select the first item on the main menu, **Input Set up**, a secondary menu will show the following items:

5.1.1 Input set up - When it is selected, a sub menu as below will appear.

Clock

Phase

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

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

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

For the balance of the menu items, use the + and – buttons to choose the parameter you want to adjust and then press the Menu (Enter) to highlight your selection. Once a parameter is highlighted, Use the + and - buttons to increase or decrease the setting value.

Press Menu (Enter) again to leave the setting and then move the arrow to the word “Exit”. Press Menu again to exit the OSD.

5.1.2 Output set up When Output Set Up is selected, a new sub-menu appears.

DVI-A DVI-D
 Mode XXXX-XX

Select DVI-A when you would like to use analog output of the T1-VGA-DVI (Rarely used format). Select DVI-D when you would like to use digital output of the T1-VGA-DVI. (This is the normal output for virtually all uses).

When DVI-A is selected, you are given the following choices for the output mode:

5.1.3 Output modes for DVI-A:

PC Resolutions		Vert Rate	Format	Scan Type
VGA	640x480	60,72,75,85 Hz	RGBHV	Progressive
VESA85	640X480	85 Hz	RGBHV	Progressive
VGA70	720X400	70 Hz	RGBHV	Progressive
SVGA	800x600	60,72,75,85 Hz	RGBHV	Progressive
XGA	1024x768	60,70,75,85 Hz	RGBHV	Progressive
MAC	1152X864	70,75 Hz	RGBHV	Progressive
WXGA	1280x768	60 Hz	RGBHV	Progressive
1280A	1280X960	60 Hz	RGBHV	Progressive
SXGA	1280x1024	60,75 Hz	RGBHV	Progressive
HDTV Resolutions		Vert Rate	Format	Scan Type
480p	720x480	60Hz	RGB	Progressive
576p	720x576	50Hz	RGB	Progressive
720p	1280x720	60Hz	RGB	Progressive
1080i	1920x1080	60Hz	RGB	Pseudo
Note 1				Interlaced
480p	720x480	60Hz	YPbPr	Progressive
576p	720x576	50Hz	YPbPr	Progressive
720p	1280x720	60Hz	YPbPr	Progressive

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

Note: Use the + and – buttons to choose your desired output for either DVI-A or DVI-D.


When DVI-D is selected, you're given the following output choices:

PC Resolutions		Vert Rate	Format	Scan Type
VGA	640x480	60,72,75,85 Hz	RGBHV	Progressive
VESA85	640x480	85 Hz	RGBHV	Progressive
VGA70	720x400	70 Hz	RGBHV	Progressive
SVGA	800x600	60,72,75,85 Hz	RGBHV	Progressive
XGA	1024x768	60,70,75,85 Hz	RGBHV	Progressive
MAC	1152x864	70,75 Hz	RGBHV	Progressive
WXGA	1280x768	60 Hz	RGBHV	Progressive
1280A	1280x960	60 Hz	RGBHV	Progressive
SXGA	1280x1024	60,75 Hz	RGBHV	Progressive
HDTV Resolutions		Vert Rate	Format	Scan Type
480p	720x480	60Hz	YPbPr, RGBHV	Progressive
576p	720x576	50Hz	YPbPr, RGBHV	Progressive
720p	1280x720	60Hz	YPbPr, RGBHV	Progressive
1080i	1920x1080	60Hz	YPbPr, RGBHV	Pseudo Interlaced
Note 1				

5.1.4 Output Adjustments When in DVI-D Mode:

Picture Adjust - When the Picture Adjust Menu is selected, the following adjust parameters will appear on the OSD:

Contrast  070

Bright  130

Color  070

Red  128

Green  128

Blue  128

Reset

Exit

Use the + and – buttons to choose the desired parameter, press Menu to select and then use + or – to increase or decrease the value. Press Menu to save the value. When finished with all adjustments, use the + and – buttons to move to Exit and then press Menu to actually exit the routine.

5.1.5 Menu Ranges and Defaults

The adjustment range and factory preset value as follows:

Value	Range	Default
Contrast	0~255	047
Bright	0~255	102
Color	0~255	064
Red	0~255	128
Green	0~255	128
Blue	0~255	128

Note: Select reset to reset all adjustment back to the factory preset value.

HV adjust- When selected, the following sub-menu appears.

H-position
V-position

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

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

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

Auto adjust- When selected, the T1-VGA-DVI will automatically adjust all the parameters to the factory presets.

Exit- Select to exit from the current menu page.

Notes:

* The default output resolution of the T1-VGA-DVI is XGA@60 Hz.

* The unit has non-volatile memory and memorizes all your setting before power off and recalls those setting on next power on however changing output resolution erases all settings.

* At any time, pressing + and - buttons simultaneously will reset the output resolution to XGA@60Hz, and other settings back to factory default values.

6 TROUBLESHOOTING

Other than checking for faulty cables, the only common problem would be choosing a wrong Output Setting. Make sure the display is capable of handling the resolution and refresh rate selected and make sure the output format selected (RGB or YPbPr) for the type of cable being used at the output. If a problem persists, please consult your Dealer or contact TV One Technical Support directly by phone at 888-520-7479 (US-Canada toll free) or 859-980-0421 or by email at tech@tvone.com.

7 LIMITED WARRANTY

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

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

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

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

8 REGULATORY COMPLIANCE

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

9 CONTACT INFORMATION

TV One	Phone 859-282-7303	Tech Support:
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