



PC/HD to 1080p

DVI Scaler Box

Operation Manual



DIGISCALE

(1).Introduction

Congratulations on your purchase of the SPATZ Video Scaler DIGISCALE.

Our professional Video Scaler products have been serving the industry for many years.

In addition to Video Scalers, SPATZ offers a full line of high quality PC multimedia, Standard Converters, Video Processors, and HDMI/DVI devices.

This manual includes operation information on the DIGISCALE.

Please read this to become familiar with the DIGISCALE and keep the manual for possible reference in the future.

SPATZ's DIGISCALE is designed to convert PC, HD and DVI to digital DVI at a variety of HDTV and PC resolutions. It handles input and output signal at 205 MHZ ultra high bandwidth. SPATZ DIGISCALE has many great features to enhance video performance and is ideal for use in professional large screen presentation.

(2).Features

1. DIGISCALE is a high bandwidth and professional PC/Component/DVI to DVI Scaler that accepts PC RGB (up to UXGA), HD Component (480i up to 1080p) and DVI (up to WUXGA) and scale them up to DVI-I output (1080p/WUXGA).
2. The input to the DIGISCALE is analog PC or HDTV signal in the format of either RGBHV or digital DVI.
3. The output of the DIGISCALE is digital DVI plus analog PC/HD with selectable output resolution from 480i to 1080p and VGA to WUXGA.
4. The input resolution is automatically detected while the output resolution and refresh rate can be selected through OSD menu or front panel push buttons.
5. Native output resolution ensures most optimal display resolution on your screen. When "Native" is selected as the output resolution, the DIGISCALE will automatically detect the native resolution of the display and send out the most optimal pixel timing to match TV's final display resolution.
6. Output picture adjustment on brightness, contrast, color, RGB level, and H-V position.
7. The DVI input is HDCP compliant which means if input is HDCP encrypted then DVI output is also HDCP encrypted. In this case the PC analog output will be turned off.
8. Includes advanced features such as Noise Reduction and overscan/underscan adjustment.
9. AUTO INPUT selection of VGA or DVI depending which input is connected.
10. **SPATZ AUTOSCALE**
Since 01.11.2011 we offer a new firmware with the unit that incorporates our **AUTO SCALE**. This function allows automatic scaling of any input signal maintaining original aspect ratio by scaling the input format to the selected output format using either full display height or full display width. No more image distortion with egg shaped circles. As an example the unit will accept a XGA input image (4:3) and display it centered on a 1080p (16:9) output image with correct aspect ratio. The scaler will scale 768 lines to 1080p and increase the horizontal pixels by the same ratio and filling left and right side with black bars to complete the 1920 pixels.
11. IPAD2 Compatible, pls ACTIVATE – KEY ON – in OSD Menu

(4).Operation Controls and Functions

1. Power: Press the button to turn ON or turn OFF (standby) the power of the unit.

2. Menu/Enter: This button serves two purposes.

a. Press the button to bring up OSD main menu as shown in the "OSD Operation". (page 7)

b. To act as a "Enter" key to enter sub menu or to adjust setting value of the selected parameter.

3. +/- button:

The buttons provide 3 functions:

a. **Input select ("+"):** Press the "+" button repeatedly to select your desired input source. The input sources are toggled through in the following sequence.

b. **Auto Tune ("-"):** Press the "-" button to carry out picture auto adjust for the VGA input. The DIGISCALE will fine tune the position (centering) and color of the output picture.

c. When in the OSD menu mode: Press the +, - button to move up or down the highlight bar to your desired parameter. Or once a parameter is selected with MENU/Enter button, press the button to adjust setting value of your selected parameter.

4. Input LED Indicators: When one of the LED illuminates its corresponding source is being selected as input.

5. IR Sensor: Infrad remote control sensor.

VI input: Connects this DVI input connector to the DVI output connector of your DVI source equipment. The DVI input should be digital DVI only and should not include analog RGB signal. The use of DVI-I connector is to ensure both DVI-I and DVI-D male connector of the DVI cable can fit into this input connector. The digital DVI input resloution can range from 480i~1080p, or VGA~WUXGA.

3. PC-D sub out: The connector for scaled analog RGB output.

Connect this output port to the analog PC RGB input of your monitor, or connect it to the RGBHV input of your HD display using D-sub to 5 BNC adaptor cable. (not included in the package)

Note: When input is a HDCP encrypted DVI signal this analog output will be turned off.

4. DVI output: Scaled digital DVI output. Connect this output to the DVI input or HDMI input of your Digital display.

Note: When input is a HDCP encrypted DVI signal the DVI output is also HDCP encrypted. The monitor/display that connected to this output also need to be HDCP compliant in order to get a nice and clean picture. A non-HDCP compliant display can only display non-HDCP signal and picture will become noise when input is a HDCP-encrypted signal.

5. Power jack: Connect to the 5V 2A DC power adaptor.

The DIGISCALE accepts PC and DVI inputs. The formats supported by these inputs are as follows:

- When connecting to a PC source use a 15-pin D-sub cable to connect the output of a PC to the D-Sub input connector of the DIGISCALE.
- 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 DIGISCALE.
- When connecting to a HDMI source, use a HDMI cable to connect to the HDMI output of a HDMI source, such as DVD or STB, 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 DIGISCALE.

The DIGISCALE can automatically detect the input resolution of all inputs.

To switch from one input source to another just press the input button on the front panel ("+") or on the remote control.

The DIGISCALE can output a variety of PC, SD and HD resolutions in both digital and analog format simultaneously.

The digital output is available from the DVI output connector while the analog output is available from the PC D-sub output connector.

The digital output supports the following resolutions, all in RGB format:

INPUT

Resolution/Refresh Rate	D-SUB	DVI/HDMI
480I/576I(NTSC/PAL)	X	*
480P/576P	V	V
<u>720P@(60/50)</u>	V	V
<u>1080I@(60/50)</u>	X	V
<u>1080P@(60/50)</u>	V	V
<u>1080P@24</u>	X	V
<u>VGA@(60/72/75/85)</u>	V	V
<u>SVGA@(56/60/72/75/85)</u>	V	V
<u>XGA@(60/70/75/85)</u>	V	V
<u>SXGA@(60/75/85)</u>	V	V
<u>UXGA@60</u>	V	V
<u>WXGA@60(1280x800)</u>	V	V
<u>WSXGA@60(1680x1050)</u>	V	V
<u>WUXGA@60(1920x1200)</u>	V	V
<u>WXGA+ @60 (1440x900)</u>	V	V
<u>SXGA+@60 (1400x1050)</u>	V	V

OUTPUT

Resolution/Refresh Rate	D-SUB	DVI/HDMI
480I/576I(NTSC/PAL)	X	*
480P/576P	V	V
720P@(60/50)	V	V
1080I@(60/50)	X	V
1080P@(60/50)	V	V
VGA@60	V	V
SVGA@60	V	V
XGA@60	V	V
SXGA@60	V	V
UXGA@60	V	V
WXGA@60(1280x800)	V	V
WSXGA@60(1680x1050)	V	V
WUXGA@60(1920x1200)	V	V
WXGA+ @60 (1440x900)	V	V
SXGA+@60 (1400x1050)	V	V

Pins definition of modem cable

		Remote Controller	
PIN	Definition	PIN	Definition
1	NC	1	NC
2	TxD	2	RxD
3	RxD	3	TxD
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate : 19200 bps

Data Bit : 8 bits

Parity : None

Stop Bit : 1 bit

TX Command Code	Response	Description
S POWER 0	POWER OFF	POWER OFF
S POWER 1	POWER ON	POWER ON
S SOURCE	SOURCE COMP	COMP INPUT
S SOURCE	SOURCE PC	PC INPUT
S SOURCE 2	SOURCE DVI	DVI INPUT
S OUTPUT 0	OUTPUT NATIVE	NATIVE RESOLUTION OUTPUT
S OUTPUT 1	OUTPUT VGA	VGA RESOLUTION OUTPUT
S OUTPUT 2	OUTPUT SVGA	SVGA RESOLUTION OUTPUT
S OUTPUT 3	OUTPUT XGA	XGA RESOLUTION OUTPUT
S OUTPUT 4	OUTPUT SXGA	SXGA RESOLUTION OUTPUT
S OUTPUT 5	OUTPUT UXGA	UXGA RESOLUTION OUTPUT
S OUTPUT 6	OUTPUT 480I	480I RESOLUTION OUTPUT
S OUTPUT 7	OUTPUT 480P	480P RESOLUTION OUTPUT
S OUTPUT 8	OUTPUT 720P	720P 60HZ RESOLUTION OUTPUT
S OUTPUT 9	OUTPUT 1080I	1080I 60HZ RESOLUTION OUTPUT
S OUTPUT 10	OUTPUT 1080P	1080P 60HZ RESOLUTION OUTPUT
S OUTPUT 11	OUTPUT 576I	576I 60HZ

RESOLUTION OUTPUT

S OUTPUT 12	OUTPUT 576P	576P 60HZ RESOLUTION OUTPUT
S OUTPUT 13	OUTPUT 720P	720P 50HZ RESOLUTION OUTPUT
S OUTPUT 14	OUTPUT 1080I50	1080I 50HZ RESOLUTION OUTPUT
S OUTPUT 15	OUTPUT 1080P50	1080P 50HZ RESOLUTION OUTPUT
S OUTPUT 16	OUTPUT WXGA	WXGA RESOLUTION OUTPUT
S OUTPUT 17	OUTPUT WSXGA	WSXGA RESOLUTION OUTPUT
S OUTPUT 18	OUTPUT WUXGA	WUXGA RESOLUTION OUTPUT
S SIZE 0	SIZE FULL	SCALER FULL OUTPUT
S SIZE 1	SIZE OVERSCAN	SCALER OVERSCAN OUTPUT
S SIZE 2	SIZE UNDERSCAN	SCALER UNDERSCAN OUTPUT
S SIZE 3	SIZE LETTERBOX	SCALER LETTERBOX OUTPUT
S SIZE 4	SIZE PANSCAN	SCALER PANSCAN OUTPUT
S SIZE 5	SIZE FOLLOW INPUT	OUTPUT IMAGE FOLLOWS INPUT
	ASPECT RATIO	
S PICTUREMODE 0~3	PICTUREMODE STANDARD~USER	
	0:STANDARD ; 1:MOVIE ; 2:VIVID ; 3:USER	

OUTPUT

S CONTRAST 0~100	CONTRAST 0~100	CONTRAST 0~100 ADJUST [Default:50]
S BRIGHTNESS 0~100	BRIGHTNESS 0~100	BRIGHTNESS 0~100 ADJUST [Default:45]
S HUE 0~100	HUE 0~100	HUE 0~100 ADJUST [Default:50]
S SATURATION 0~100	SATURATION 0~100	SATURATION 0~100 ADJUST Default:60]
S SHARPNESS 0~100	SHARPNESS 0~100	SHARPNESS 0~100 ADJUST [Default:32]
S NR 0~3	NR OFF~HIGH	0:OFF ; 1:LOW ; 2:MIDDLE ; 3:HIGH ,NR CONTROL
S PCHPOSITION 0~100	PCHPOSITION 0~100	H POSITION 0~100 ADJUST
S PCVPOSITION 0~100	PCVPOSITION 0~100	V POSITION 0~100 ADJUST
S PCCLOCK 0~100	PCCLOCK 0~100	PC MODE COLCK 0~100 ADJUST
S PCPHASE 0~63	PCPHASE 0~63	PC MODE PHASE 0~63 ADJUST
S COLORTEMP 0~3	COLORTEMP NORMAL~USER 0:NORMAL ; 1:WARM ; 2:COOL ; 3:USER	
S RED 0~100>	RED 0~100COLOR TEMP	"RED" ADJUST [Default:47]
S GREEN 0~100>	GREEN 0~100 COLOR TEMP	"GREEN" ADJUST [Default:47]
S BLUE 0~100>	BLUE 0~100COLOR TEMP	"BLUE" ADJUST [Default:47]
OSDHPOSITION 0~100	OSDHPOSITION 0~100	OSD H POSITION 0~100 [Default:50]
S OSDVPOSITION 0~100	OSDVPOSITION 0~100	OSD V POSITION 0~100 [Default:50]
S OSDTIMEOUT 0~100	OSDTIMEOUT 0~100	OSD TIMEOUT 0~100 SETTING [Default:10]
S OSDBACKGROUND 0~8	OSDBACKGROUND 0~8	OSD OSDBACKGROUND 0~8 [Default:5]
S RESET 1	RESET ON	RESET ACTION

RX Command Code	Response	Description
R POWER	POWER ON	SHOW POWER STATUS
R SOURCE	SOURCE Comp, PC, DVI	SHOW SOURCE STATUS
R OUTPUT	OUTPUT NATIVE~WUXGA	SHOW OUTPUT STATUS
R SIZE	SIZE FULL~PANSKAN	SHOW SIZE STATUS
R PICTUREMODE	PICTUREMODE STANDARD~USER SHOW PICTURE MODE STATUS	
CONTRAST	CONTRAST 0~100	SHOW CONTRAST STATUS
R BRIGHTNESS	BRIGHTNESS 0~100	SHOW BRIGHTNESS STATUS R HUE
	HUE 0~100	SHOW HUE STATUS R SATURATION
	SATURATION 0~100	SHOW SATURATION STATUS
R SHARPNESS	SHARPNESS 0~100	SHOW SHARPNESS STATUS
R NR	NR OFF~HIGH	SHOW NR STATUS
R PCHPOSITION	PCHPOSITION 0~100	SHOW PC H-POSITION STATUS
R PCVPOSITION	PCVPOSITION 0~100	SHOW PC V-POSITION
R PCCLOCK	PCCLOCK 0~100	SHOW PC CLOcK STATUS
R PCPHASE	PCPHASE 0~63	SHOW PC PHASE STATUS
R COLORTEMP	COLORTEMP NORMAL~USER	SHOW COLOR TEMP STATUS
R RED	RED 0~100	SHOW COLOR TEMP RED STATUS
R GREEN	GREEN 0~100	SHOW COLOR TEMP GREEN
R BLUE	BLUE 0~100	SHOW COLOR TEMP BLUE STATUS
R OSDHPOSITION	OSDHPOSITION 0~100	SHOW OSD H-POSITION STATUS
R OSDVPOSITION	OSDVPOSITION 0~100	SHOW OSD V-POSITION STATUS
R OSDTIMEOUT	OSDTIMEOUT 0~100	SHOW OSD TIMEOUT STATUS
R OSDBACKGROUND	OSDBACKGROUND 0~8	SHOW OSD BACKGROUND STATUS
R AUDIOMUTE	AUDIOMUTE OFF~ON	SHOW AUDIO MUTE STATUS
R AUDIODELAY	AUDIODELAY OFF~150MS	SHOW AUDIO DELAY STATUS
k auto	EXECUTE AUTOADJUST	R
HDCPKEY	> HDCPKEY ON/OFF	Show HDCPKEY status
S HDCPKEY 0	> HDCPKEY OFF	Input HDCP off
S HDCPKEY 1	> HDCPKEY ON	Input HDCP on