

# CV/SV/PC/HD/HDMI 1080p Scaler Box

Operation Manual



# TABLE OF CONTENTS

<b>1. Introduction</b> .....	1
<b>2. Features</b> .....	1
<b>3. Package Contents</b> .....	1
<b>4. Operation Controls and Functions</b> .....	2
4.1 Front Panel.....	2
4.2 Rear Panel.....	2
4.3 OSD Operation.....	4
4.4 Remote Control.....	5
<b>5. US255i RS-232 Remote Control Protocol</b> .....	6
<b>6. Specifications</b> .....	9
6.1 General Specification.....	9
6.2 Support Resolution.....	9
<b>7. Connection and Installation</b> .....	10

## **1. Introduction**

**The US255i Scaler Box** is designed to upscale digital/analog video signal from Composite, S-Video, PC, Component (HD) and HDMI input sources, to digital HDMI output of wide-range HDTV and PC resolutions, up to 1080p and WUXGA (1920 x 1200.) Besides video upscaling, the scaler box also converts digital/analog audio signal to digital format, then output either through HDMI combining with the video, or Coaxial S/PDIF separately. The US255i has a comprehensive OSD menu that allows user to select a variety of output resolutions and adjust for best picture quality.

## **2. Features**

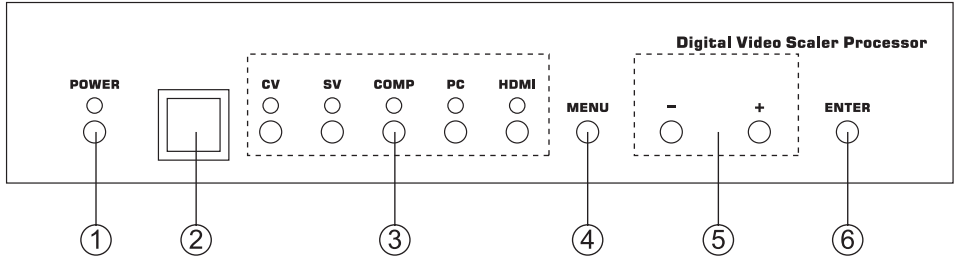
1. HDMI 1.2, HDCP 1.1 and DVI 1.0 compliant.
2. Scales any PC (VGA ~ WUXGA) /HD (480i ~ 1080p) resolutions to/from another PC/HD resolutions.
3. Automatically detect the factory setting of the connected display and output the corresponding resolution and refresh rate, when the NATIVE output is selected.
4. Supports PAL/NTSC, 50/60Hz frame rate, conversion.
5. Supports 3-D motion video adaptive, 3-D de-interlacing, and 3:2 / 2:2 pull-down detection and recovery.
6. Provides output picture adjustment on contrast, brightness, hue, saturation, sharpness, RGB (color tone) level, and aspect ratio size.
7. Supports high resolution input/output:  
PC: VGA, SVGA, XGA, SXGA, UXGA, WXGA, WSXGA, WUXGA  
HDTV: 480i, 576i, 480p, 576p, 720p, 1080i, and 1080p
8. Supports digital and analog audio input and output.

## **3. Package Contents**

1. US255i Scaler Box
2. D-Sub (15pin) Cable
3. 3XRCA Cable (Composite Video + L/R Audio)
4. Remote Controller
5. 5VDC Power Supply Adaptor
6. Operation Manual

## 4. Operation Controls and Functions

### 4.1. Front Panel



1. POWER Button and LED Indicator:

Press the button to turn ON/OFF the power of the unit. The LED will illuminate when the power is turned on.

2. IR remote control sensor.

3. Input Selection Buttons and LED Indicators:

Press each of the buttons (CV/SV/COMP/PC/HDMI) to select the desired input source. The LED will illuminate when the corresponding input is selected.

4. MENU Button:

Press the MENU button to bring up OSD operation menu (see section "4.3 OSD Operation" for reference.)

5. +/- Buttons:

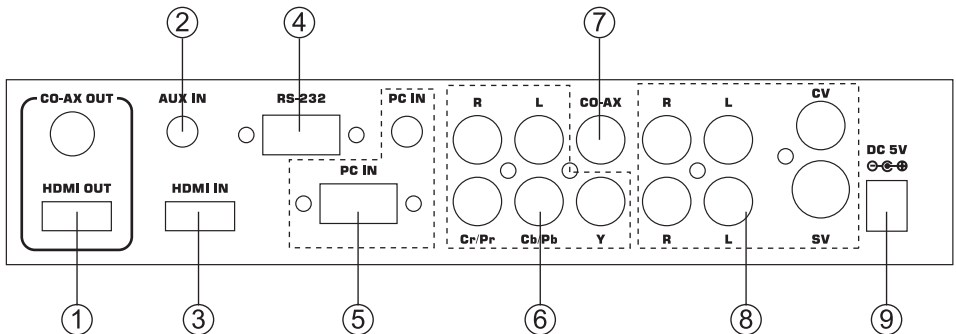
a. On the first tier of OSD menu, use + and - buttons to move up/down the highlight item for selection.

b. Once the desired option is selected, use + and - buttons to toggle between setting values.

6. ENTER Button:

In OSD menu, use the ENTER button to confirm the selection.

### 4.2. Rear Panel



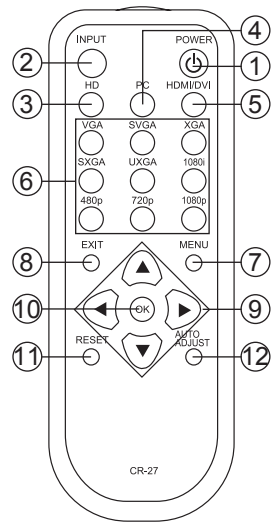
1. HDMI OUT and CO-AX OUT:  
Connect the HDMI OUT port to the HDMI input port of your display such as HDTV. Connect the CO-AX OUT port to the Coaxial (S/PDIF) input port of your amplifier for separate digital audio output.
2. AUX IN Input:  
When the video signal input through the HDMI IN port is from a DVI source such as a PC, use the AUX IN port to input the audio signal.
3. HDMI IN Input:  
Connect the HDMI IN port to the HDMI output port of your source equipment such as DVD player or Set-Top-Box. Or, use HDMI to DVI cable to connect to the DVI output of your PC.
4. RS-232:  
The port is for firmware update only.
5. PC IN for Video and Audio Input:  
Connect the PC IN D-Sub (15-pin) port to the D-Sub output port of your PC. And, connect the PC IN 3.5mm phone jack to the audio output port of your PC.
6. Y Pb/Cb Pr/Cr Video and L/R Audio Input:  
Connect the Y Pb/Cb Pr/Cr (Component) 3 RCA input ports to the Component output port of your video source equipment such as DVD player or Set-Top-Box. And, connect the L/R audio input ports to the audio output port of your audio source equipment.
7. CO-AX Input:  
The CO-AX port provides the digital audio input support, and can be used to combine with each video input signals from CV/SV/COMP/PC/HDMI ports. Once connected, please use the Audio Source Selection in the OSD menu to select between Coaxial (S/PDIF) or other audio source (see section "4.3 OSD Operation" for reference.)
8. Composite Video / S-Video and L/R Audio Input:  
Connect the Composite or S-Video input port to the Composite or S-Video output port of your video source equipment such as DVD player or Set-Top-Box. And, connect the L/R audio input ports to the audio output port of your audio source equipment.
9. Power:  
Plug the 5VDC power supply into the unit and connect the adaptor to AC wall outlet.

### 4.3. OSD Operation

1 <sup>st</sup> Tier Option	2 <sup>nd</sup> Tier Option	Adjustment
VIDEO	- PICTURE MODE	USER / STANDARD / VIVID / MOVIE
	- CONTRAST	0 ~ 100 of Contrast Level
	- BRIGHTNESS	0 ~ 100 of Brightness Level
	- HUE	0 ~ 100 of Hue Level
	- SATURATION	0 ~ 100 of Saturation Level
	- SHARPNESS	0 ~ 100 of Sharpness Level
	- SCALE	OVERSCAN / UNDERSCAN / LETTERBOX / PANSCAN / FULL
	- NR	LOW / MIDDLE / HIGH / OFF
	- EXIT	Back to the 1 <sup>st</sup> Tier
	COLOR	- COLOR TONE
- RED		0 ~ 100 of Red Color Level
- GREEN		0 ~ 100 of Green Color Level
- BLUE		0 ~ 100 of Blue Color Level
- EXIT		Back to the 1 <sup>st</sup> Tier
OUTPUT	-	NATIVE / VGA / SVGA / XGA / SXGA / UXGA / 480i / 480p / 720p@60Hz / 1080i@30Hz / 1080p@60Hz / 576i / 576p / 720p@50Hz / 1080i@25Hz / 1080p@50Hz / WXGA / WSXGA / WUXGA
OSD	- HPOSITION	0 ~ 100 of OSD Horizontal Position
	- VPOSITION	0 ~ 100 of OSD Vertical Position
	- TIMER	0 ~ 100 of OSD Show Time (sec.)
	- TRANSP	0 ~ 100 of OSD Transparent Level
	- EXIT	Back to the 1 <sup>st</sup> Tier
AUDIO	- SOURCE	HDMI / L/R / COAXIAL
	- DELAY	OFF / 40MS / 110MS / 150 MS
	- SOUND	ON / MUTE
	- EXIT	Back to the 1 <sup>st</sup> Tier
INFORMATION	-	SOURCE (Input interface) INPUT (Input Resolution) OUTPUT (Output Resolution) VERSION (Firmware Version)
EXIT	-	Close the OSD Menu

## 4.4. Remote Control

1. **POWER:**  
Press the button once to power on the US255i.  
Press again to enter standby mode.
2. **INPUT:**  
Press the button repeatedly to toggle through various input sources.
3. **HD Input:**  
Press the button to directly select component input.
4. **PC Input:**  
Press the button to directly select PC input.
5. **HDMI/DVI Input:**  
Press the button to directly select DVI (or HDMI) input.
6. **Output Resolution:**  
Press any one of the button to directly select output resolution. For other output resolutions that are not covered by these buttons please enter OSD Menu to select them.
7. **MENU:**  
Press the button to bring up OSD main menu page.
8. **Exit:**  
Press the button to exit from a sub menu or main menu.
9. **Up/Down/Left/Right:**  
Press the Up/Down button to move the highlight bar to your desired parameter during the OSD operation. Press the Left/Right button to increase/decrease the setting value of a selected parameter.
10. **OK (Enter):**  
Press the button to confirm your selection.
11. **Reset:**  
Press the button to reset the unit's firmware setting to the factory default value.
12. **Auto Adjust:**  
Press the button to optimize the position of the picture (picture centering) on the screen.



## 5. US255i RS-232 Remote Control Protocol

\* The connection between US255i and remote controller with **RS-232 modem cable**.

Pins definition of modem cable

US255i			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

\* RS-232 transmission format:

Baud Rate: 19200 bps

Data Bit: 8 bits

Parity: None

Stop Bit: 1 bit

## (A) Set Command:

Command Code	Response	Description
S POWER 0	> POWER OFF	POWER OFF
S POWER 1	> POWER ON	POWER ON
S SOURCE 0	> SOURCE CV	CV INPUT
S SOURCE 1	> SOURCE SV	SV INPUT
S SOURCE 2	> SOURCE COMP	COMP INPUT
S SOURCE 3	> SOURCE PC	PC INPUT
S SOURCE 4	> SOURCE HDMI	HDMI 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 PANSKAN	SCALER PANSKAN OUTPUT
S PICTUREMODE 0~3	> PICTUREMODE STANDARD~USER	0:STANDARD; 1:MOVIE; 2:VIVID; 3:USER, PICTURE MODE 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, COLOR TEMP SETTING
S RED 0~100	> RED 0~100	COLOR TEMP "RED" ADJUST [Default:47]
S GREEN 0~100	> GREEN 0~100	COLOR TEMP "GREEN" ADJUST [Default:47]
S BLUE 0~100	> BLUE 0~100	COLOR TEMP "BLUE" ADJUST [Default:47]
S OSDHPOSITION 0~100	> OSDHPOSITION 0~100	OSD H POSITION 0~100 ADJUST [Default:50]
S OSDVPOSITION 0~100	> OSDVPOSITION 0~100	OSD V POSITION 0~100 ADJUST [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 ADJUST [Default:5]
S AUDIOMUTE 0~1	> AUDIOMUTE OFF~ON	0:OFF; 1:ON, AUDIO MUTE CONTROL
S AUDIODELAY 0~3	> AUDIODELAY OFF~150MS	0:OFF; 1:40MS; 2:110MS; 3:150MS, AUDIO DELAY SETTING
S RESET 1	> RESET ON	RESET ACTION

(B) Status Command :

Command Code	Response	Description
R POWER	> POWER ON	SHOW POWER STATUS
R SOURCE	> SOURCE CV~HDMI	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
R 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 STATUS
R PCCLOCK	> PCCLOCK 0~100	SHOW PC COLOK 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 STATUS
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

## 6. Specifications

### 6.1. General Specification

\* Frequency bandwidth: 1.65Gbps (single link)

\* Input Ports:

Composite x 1 / L/R x 1

S-Video x 1 / L/R x 1

Component (3 RCA) x 1 / L/R x 1

PC D-Sub (15-pin) x 1 / 3.5mm Phone Jack x 1

HDMI x 1 / 3.5mm Phone Jack x 1 (for DVI)

Coaxial (S/PDIF) x 1

\* Output Ports:

HDMI x 1

Coaxial (S/PDIF) x 1

\* 5V DC power supply

\* Dimensions: 215(W) x 154(D) x 47(H)mm

\* Weight: 1Kgs

### 6.2. Support Resolution

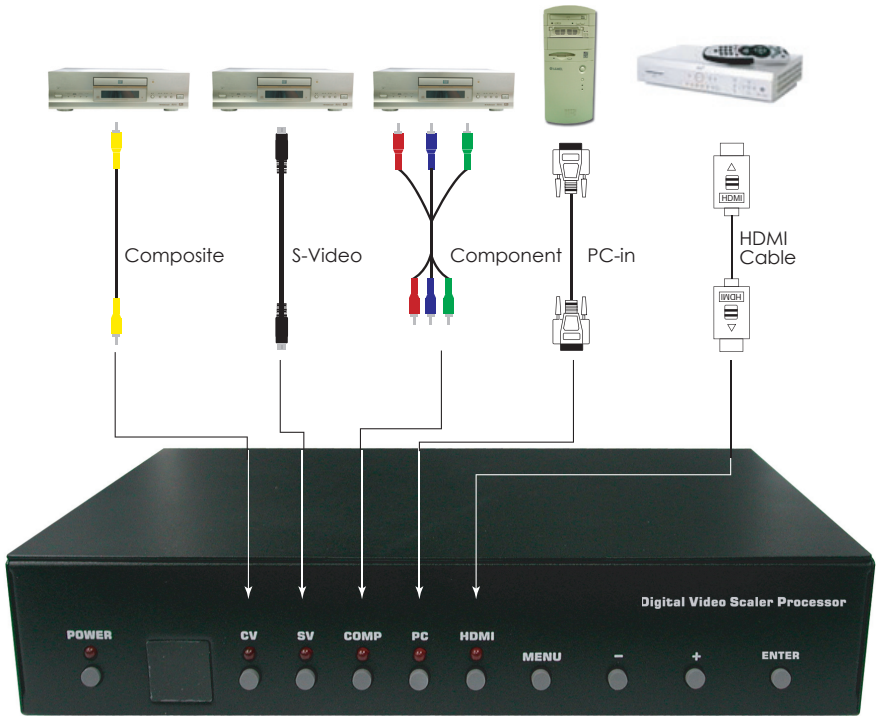
Resolution	INPUT		
	Component	D-SUB	DVI/HDMI
480i/576i	√		*
480p/576p	√	√	√
720p@(60/50)	√	√	√
1080i@(30/25)	√		√
1080p@(60/50)	√	√	√
VGA@(60/72/75/85)		√	√
SVGA@(56/60/72/75/85)		√	√
XGA@(60/70/75/85)		√	√
SXGA@(60/75/85)		√	√
UXGA@60		√	√
WXGA@60(1280X800)		√	√
WSXGA@60(1680X1050)		√	√
WUXGA@60(1920X1200)		√	√

\* : 480i@30x2 / 576i@30x2

Resolution	OUTPUT
	DVI/HDMI
480i/576i	*
480p/576p	√
720p@(60/50)	√
1080i@(30/25)	√
1080p@(60/50)	√
VGA@(60/72/75/85)	√
SVGA@(56/60/72/75/85)	√
XGA@(60/70/75/85)	√
SXGA@(60/75/85)	√
UXGA@60	√
WXGA@60(1280X800)	√
WSXGA@60(1680X1050)	√
WUXGA@60(1920X1200)	√

\* : 480i@30x2 / 576i@30x2

## 7. Connection and Installation



TV