Multi-format to HDMI/VGA Scaler
ID # 15202

Operation Manual

Introduction

This Multi Input Scaler has Composite Video, Component Video, PC (VGA), and HDMI inputs and can switch and scale the signal to HDMI or VGA with audio outputs. It supports HDMI output resolutions up to 1080p/WUXGA and Analog Digital Conversion (ADC) and Digital Analog Conversion (DAC) allowing a wide range of AV signals to be displayed on a HDMI or VGA display. Further, the On-screen Display (OSD), IR remote, RS-232, IP and on-panel controls make this product very versatile.

Features

- Supports switching and scaling of multiple AV inputs to HDMI or PC/HD outputs
- Supports EDID and HDCP
- Supports 3D de-interlace, noise reduction and 3D comb filter
- Supports frame rate conversion
- Supports RS-232, IP(Telnet/Web GUI) and IR controls
- Supports output timing hot keys switching
- HDMI compatible with DVI
- Supports Digital to Analog (DAC) and Analog to Digital (ADC) Audio conversion
- Non-HDCP mode for use with Apple computers

Applications

- Analog and digital source integration
- Upscaling standard definition video for high-definition displays
- Conference centres
- Lecture halls
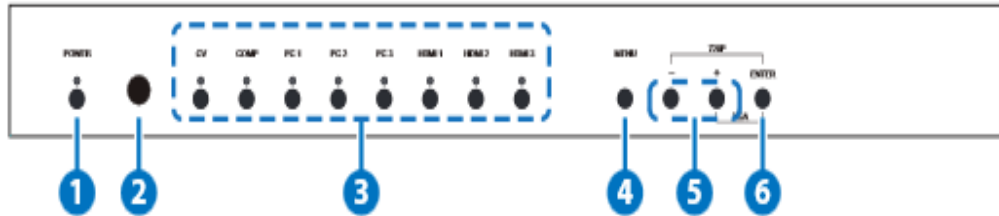- Schools and universities

System Requirements

Source equipment such as Blu-ray/DVD players or PC/Laptop and output to displays, AV Receivers or active speakers.

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The following sections describe the hardware components of the unit.

Front Panel

1.POWER Button and LED:
Press this button to switch the device on or to set it to standby mode. Once
the device is connected to an active power supply the LED will illuminate
and the device will switch on automatically.
2.IR Receiver Window:
Receives only the IR signal from the remote control included in the
package.
3.INPUT Buttons and LEDs:
Press these buttons to switch directly to the required source. An LED will
illuminate to indicate the selected input source.
4.MENU:
Press this button to enter the On-screen Display (OSD) menu.
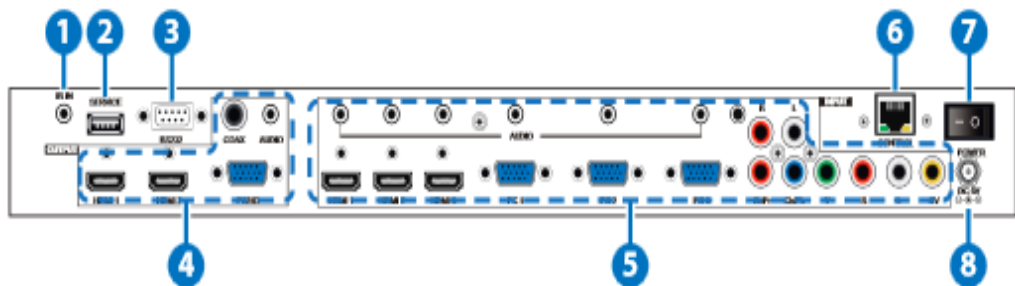**5.Plus/Minus (−/+)Buttons:**
Press these buttons to navigate down and up in the OSD menu.
6.ENTER:
Press this button to confirm the selection in the OSD menu.
Note: Press this button simultaneously with the '+' (plus) button to
instantly switch the output to XGA resolution or with the '−' (minus)
button to instantly switch the output to 720p resolution

Back Panel

1.IR IN:
Connect the supplied IR extender to receive the IR signal from the included
IR remote. Ensure that the remote is within the direct line-of-sight of the IR
extender.

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2.SERVICE:
Reserved for manufacturer use only
3.RS-232:
Connect to a PC/Laptop or RS-232 control system to use RS-232
commands to control the device (See RS-232 and Telnet Commands Section
for details on RS-232 commands)
4.OUTPUT
1) HDMI 1/2: Connect to an HDMI display or AV Receiver for video and/or
audio output
2) PC/HD: Connect to a monitor/display for video output. For HD
(Component) output, use the supplied D-Sub 9pin to 3 RCA adaptor cable
for HD resolutions from 480p~1080p.
3) COAX: Connect to an amplifier or active speakers for audio output in
digital format.
Note: When the input audio source signal is in bitstream format
and the AUDIO SOURCE setting is set to AUTO in the OSD menu,
the coaxial output will bypass the input audio signal including
compatible surround sound formats.
4) AUDIO: Connect to an amplifier or active speakers for audio output in
stereo format
5.INPUT
1) HDMI 1/2/3: Connect to HDMI sources such as Blu-ray/DVD player for
both video and audio signal conversion.
2) PC 1/2/3: Connect to a PC/Laptop source for video signal input with a D-
Sub 15pin cable.
3) 3.5mm Mini-jacks: Connect to source's L/R output with 3.5mm mini-jack
for audio signal conversion.
Note: For HDMI signals you can select in the OSD Menu whether you
require audio from the HDMI (AUTO) or from the analog audio inputs (EXT)
4) YCbCr/YPbPr + L/R: Connect to source equipment such as a DVD
player for both video and audio signal conversion.
5) CV + L/R: Connect to a composite video source such as a video/DVD
player for both video and audio signal conversion.
6. CONTROL:
This port is the link for Telnet or Web GUI controls, connect to an active
Ethernet link with an RJ45 terminated cable
7. POWER:
Switch this power toggle to turn on and activate the device or turn off to shut
it down.
8. DC 5V:
Connect the power adaptor included in the package to the device and plug it
into an AC wall outlet for power supply.

Remote Control

1. POWER:
Press this button to switch the device on or to set it to standby mode.

2. HDMI1/2/3, PC1/2/3, CV and COMP:
Direct source selection keys. Press one of these keys to switch to the required source.

3. MENU:
Press this button to enter the OSD menu.

4. EXIT:
Press this button to exit the menu or the current selection in the OSD menu.

5. OK & ▲ ▼ ◄ ►:
Press OK to confirm the selection or press the arrow buttons to navigate the OSD menu. When the OSD menu is not active, use the LEFT/RIGHT (◄►) to control the volume level.

6. AUTO ADJUST:
Press this button when the image being outputted does not correctly fit the display's screen. The device will auto adjust the image to fill the screen.

7. RESET:
Press this button to reset the device back to the default settings.
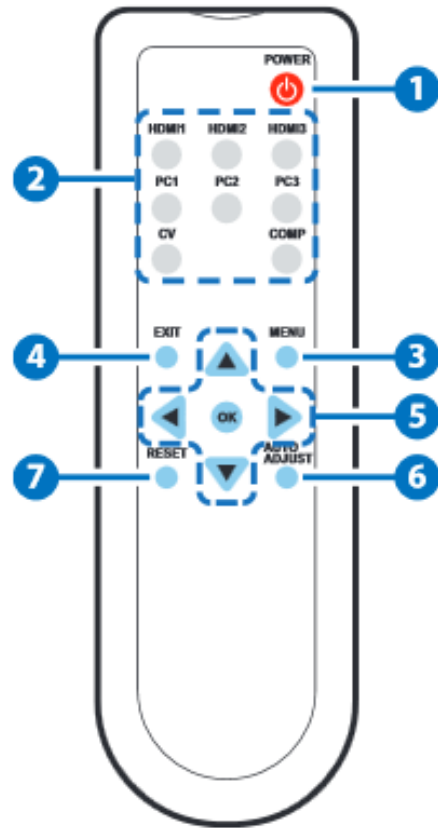
RS-232 Protocols

ID 15204		Remote Control Console	
PIN	**Assignment**	**PIN**	**Assignment**
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
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: 19200bps   Parity: None   Stop Bit: 1
Data bit: 8 bits   Flow Control: None

Command	Description
S POWER 0/1 **R POWER**	0=OFF　　　　　　　1=ON Reports the numeric equivalent for POWER setting (as above)
S SOURCE 1~8 **R SOURCE**	1=HDMI 1　　　　5=VIDEO 2=HDMI 2　　　　6=PC 1 3=HDMI 3　　　　7=PC 2 4=YPbPr　　　　 8=PC 3 Reports the numerical equivalent for SOURCE setting (as above)
S OUTPUT 0~21[1] **R OUTPUT**	0=640×480　　　　　　11=1600×1200 1=800×600　　　　　　12=920×1080 2=1024×768　　　　　　13=1920×1200 3=1280×768　　　　　　14=480p 4=1360×768　　　　　　15=720p@60 5=1280×720　　　　　　16=1080i@60 6=1280×800　　　　　　17=1080p@60 7=1280×1024　　　　　18=576p 8=1440×900　　　　　　19=720p@50 9=1400×1050　　　　　20=1080i@50 10=1680×1050　　　　 21=1080p@50 Reports the numerical equivalent for OUTPUT setting (as above)
S SIZE 0~6 **R SIZE**	0=OVERSCAN　　　　　4=LETTER BOX 1=FULL　　　　　　　5=UNDER 2 2=FOLLOW INPUT　　 6=UNDER 1 3=PAN SCAN Reports the numerical equivalent for SIZE setting (as above)
S INPUT HDCP 0/1 **R INPUT HDCP**	0=ON　　　　　　　1=OFF Reports the numerical equivalent for INPUT HDCP setting (as above)
S CONTRAST 0~60 **R CONTRAST**	Sets the numerical equivalent for CONTRAST setting (0~60) Reports the numerical equivalent for CONTRAST setting
S BRIGHTNESS 0~60 **R BRIGHTNESS**	Sets the numerical equivalent for the BRIGHTNESS setting (0~60) Reports the numerical equivalent for the BRIGHTNESS setting

S HUE 0~60 **R HUE**	Sets the numerical equivalent for the HUE setting (0~60) Reports the numerical equivalent for the HUE setting
S SATURATION 0~60 **R SATURATION**	Sets the numerical equivalent for the SATURATION setting (0~60) Reports the numerical equivalent for the SATURATION setting
S SHARPNESS 0~30 **R SHARPNESS**	Sets the numerical equivalent for the SHARPNESS setting (0~60) Reports the numerical equivalent for SHARPNESS setting
S NR 0~3 **R NR**	0=OFF 2=MIDDLE 1=LOW 3=HIGH Reports the numerical equivalent for the NOISE REDUCTION setting (as above)
S VOLUME 0~100 **R VOLUME**	Sets the numerical equivalent for VOLUME setting (0~100) Reports the numerical equivalent for VOLUME setting
S AUDIO DELAY 0~3 **R AUDIO DELAY**	0=OFF 2=110ms 1=40ms 3=150ms Reports the numeric equivalent for the AUDIO DELAY setting (as above)
S AUDIO MUTE 0/1 **R AUDIO MUTE**	0=ON 1=MUTE Reports the numeric equivalent for the AUDIO MUTE setting (as above)
S HDMI AUDIO 0/1 **R HDMI AUDIO**	0=AUTO 1=EXT Reports the numeric equivalent for HDMI AUDIO setting (as above)
S KEY LOCK 0/1 **R KEY LOCK**	0=ENABLE 1=DISABLE Reports the numeric equivalent for KEY LOCK setting (as above)
S FREERUNCOLOR 0/1 **R FREERUNCOLOR**	Sets the Free run color (0=Black, 1=Blue) Reports the numerical equivilent for the free run color setting (as above)
S RESET 1	Sets the numerical equivalent for RESET setting (as left)
PORT 0~8	0=LAST MEMORY 5=VIDEO 1=HDMI 1 6=PC 1

	2=HDMI 2 3=HDMI 3 4=YPbPr	7=PC 2 8=PC 3
ST	Checks the FIRMWARE version and SOURCE information: 0.00~x.xx SOURCE: HDMI ~ PC3 PORT ON: LAST ~ PC3	
VOL + **VOL -**	Raises the volume level (VOLUME * IS SET) Lowers the volume level (VOLUME * IS SET)	
QUIT	EXIT (Telnet only)	

Note:
*1. Resolution settings 0~13 are RGB encoded. Resolution settings
14~21 are YUV encoded.
2. RS-232 commands will be not executed unless followed with a
carriage return (CR) command and for some systems a Line feed
(LF) command. Commands are case-insensitive.*

OSD Menu

Main Menu	Sub Menu	3rd Menu	4th Menu
DISPLAY	OUTPUT	640×480 60	
		800×600 60	
		1024×768 60	
		1280×768 60	
		1360×768 60	
		1280×720 60	
		1280×800 60	
		1280×1024 60	
		1440×900 60	
		1400×1050 60	
		1680×1050 60	
		1600×1200 60	
		1920×1080 60	
		1920×1200 60	
		1280×720P 60*	
		1920×1080I 60	
		1920×1080P 60	

		720×576P 50	
		1280×720P 50	
		1920×1080I 50	
		1920×1080P 50	

Main Menu	Sub Menu	3rd Menu	4th Menu
DISPLAY	SIZE	OVER SCAN	
		FULL*	
		FOLLOW INPUT	
		PAN SCAN	
		LETTER BOX	
		UNDER 2	
		UNDER 1	
	MODE INFO	OFF	
		INFO*	
		ON	
	INPUT HDCP (HDMI mode only)	OFF	
		ON*	
	PC (PC mode only)	AUTO SETUP	
		H_POSITION	
		V_POSITION	
		PHASE	
		CLOCK	
		WXGA/XGA	**XGA***
			WXGA
		RESET	

Main Menu	Sub Menu	3rd Menu	4th Menu
COLOUR	CONTRAST	0~60 (30)	
	BRIGHTNESS	0~60 (30)	
	COLOR	R 0~1023 (512)	
		G 0~1023	

		(512)	
		B 0~1023 (512)	
		R OFFSET 0~1023 (512)	
		G OFFSET 0~1023 (512)	
		B OFFSET 0~1023 (512)	
	HUE	0~60 (30)	
	SATURATION	0~60 (30)	
	SHARPNESS	0~30 (0)	
	NR.	**OFF***	
		LOW	
		MIDDLE	
		HIGH	
AUDIO	VOLUME	0~100 (100)	
	DELAY	**OFF***	
		40ms	
		110ms	
		150ms	
	SOUND	**ON***	
		MUTE	
	SOURCE (HDMI mode only) *1	**AUTO***	
		EXT.	
SETUP	FACTORY RESET2		
	KEY LOCK	**OFF***	
		ON	
	POWER SAVE	**OFF***	
		ON	
	IP MODE	**DHCP***	
		STATIC	
	SET STATIC	IP ADDRESS	0.0.0.0.~ 255.255.255.255*3

		SUBNET MASK	0.0.0.0.~ 255.255.255.255*$_4$
		DEF.GETWAY	0.0.0.0.~ 255.255.255.255*$_5$
	FREE RUN COLOR	BLACK	
		BLUE*	
INFORMATION	INPUT		
	OUTPUT		
	REVISION		
	IP ADDRESS		

Note:
1.When the AUDIO SOURCE setting is set to 'AUTO', the device will
send the audio signal according to the input source. If the input signal is HDMI,
the device will use the HDMI audio signal and if input is DVI, the device will use
the external L/R audio. When AUDIO SOURCE is set to EXT, the device will use
the external L/R audio input for the relevant HDMI input only.
2.The Factory reset option in the OSD menu will only reset part of settings. For a
complete reset of the system, please use the reset button on the remote control.
3. 192.168.0.1 (Default Setting).
4. 255.255.255.0 (Default Setting).
5. 192.168.0.254 (Default Setting).
6. Items in **BOLD** with an asterisk (*) are the Factory default settings.
Items in brackets are the default values for those settings.

Telnet Control

Before attempting to use the Telnet control, ensure that both the Scaler (via the LAN port) and the PC/Laptop or control system being used are connected to the same active network.

To access the Telnet control in Windows 7, click on the "Start" menu and type "cmd" into the Search field then press enter (see below for reference).

Under Windows XP, go to the "Start" menu and click on "Run", type "cmd" then press enter (see below for reference).

Under Mac OS X, go to the file menu then navigate to Go→Applications→Utilities→Terminal (see below for reference).

Once in the command line interface (CLI) type "telnet" along with the the IP address of the unit you wish to control. This will bring us into the device which we wish to control.
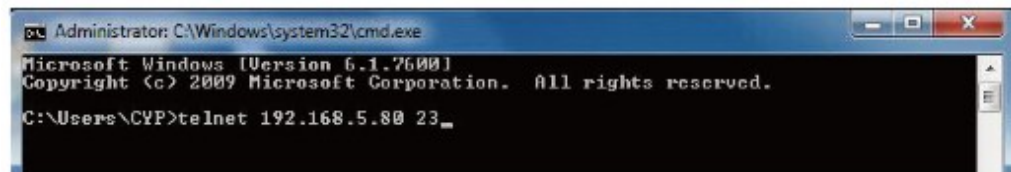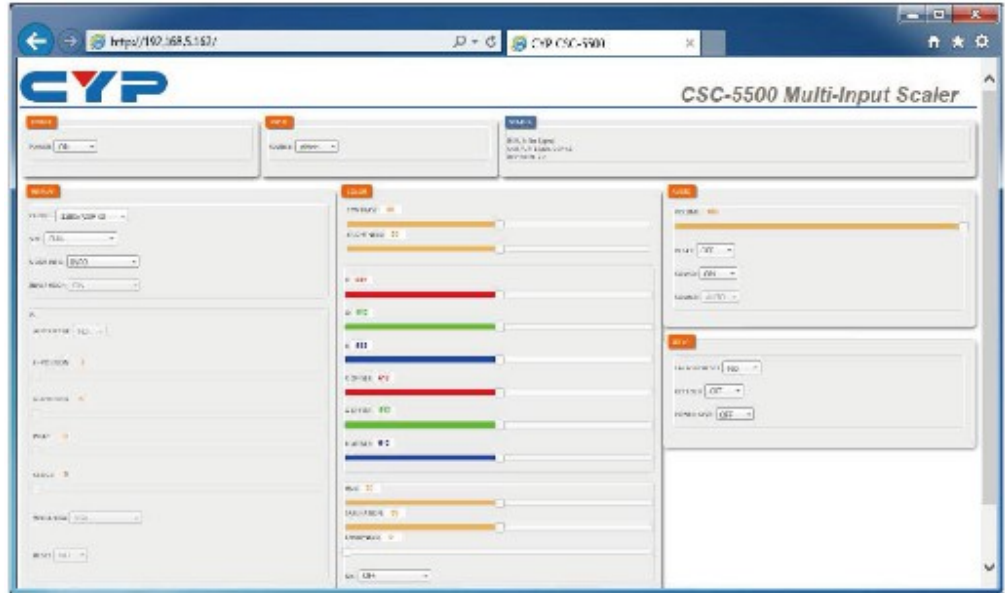

Note: The IP address can be obtained from the OSD menu under Information. Type "?" to list all the available commands.

```
Telnet 192.168.5.162                              _ □ x
?
======================
 command
======================
S POWER n          // n:0~1 ,0:Off 1:On
R POWER            //
S SOURCE n         // n:1~8
R SOURCE           //
S OUTPUT n         // n:0~21
R OUTPUT           //
S SIZE n           // n:0~6
R SIZE             //
S INPUTHDCP n      // n:0~1 ,0:On 1:Off
R INPUTHDCP        //
S CONTRAST n       // n:0~60
R CONTRAST         //
S BRIGHTNESS n     // n:0~60
R BRIGHTNESS       //
S HUE n            // n:0~60
R HUE              //
S SATURATION n     // n:0~60
R SATURATION       //
S SHARPNESS n      // n:0~30
R SHARPNESS        //
S NR n             // n:0~3
R NR               //
S VOLUME n         // n:0~100
R VOLUME           //
S AUDIODELAY n     // n:0~3
R AUDIODELAY       //
S AUDIOMUTE n      // n:0~1 ,0:On 1:Mute
R AUDIOMUTE        //
S HDMIAUDIO n      // n:0~1 ,0:Auto 1:Ext.
R HDMIAUDIO        //
S KEY LOCK n       // n:0~1 ,0:On 1:Off
R KEY LOCK         //
S FREERUNCOLOR n   // n:0~1 ,0:Black 1:Blue
R FREERUNCOLOR     //
S RESET n          // n:1
PORT n             // n:0~8
ST                 // Show Status & fw version
VOL +              // Volume Up
VOL -              // Volume Down
======================
```

Note: All command will not be executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also needs to be change accordingly.

Web GUI Control

On a PC/Laptop that is connected to same active network as the Scaler, open a web browser and type device's IP address on the web address entry bar. The browser will bring up the control page of the Scaler.

Note: The IP address can be obtained from the OSD menu under Information.

Input Resolution Support

Resolution	INPUT			
	CV	Component	PC	HDMI
NTSC/PAL	Ｖ			
480i/576i		Ｖ		Ｖ
480p/576p		Ｖ		Ｖ
720p@50/60Hz		Ｖ		Ｖ
1080i@50/60Hz		Ｖ		Ｖ
1080p@50/60Hz		Ｖ		Ｖ
VGA@60/72/75Hz			Ｖ	Ｖ
SVGA@56/60/72/75Hz			Ｖ	Ｖ
XGA@60/70/75Hz			Ｖ	Ｖ
SXGA@60/75Hz			Ｖ	Ｖ
UXGA@60Hz			Ｖ	Ｖ
1280×800@60Hz			Ｖ	Ｖ
1680×1050@60Hz (RB)			Ｖ	Ｖ
1920×1080@60Hz (RB)			Ｖ	Ｖ

Output Resolution Support

Resolution	Output	
	PC/HD	HDMI
480p/576p	HD	∨
720p@50/60Hz	HD	∨
1080i@50/60Hz	HD	∨
1080p@50/60Hz	HD	∨
VGA@60Hz	∨	∨
SVGA@60Hz	∨	∨
XGA@60Hz	∨	∨
SXGA@60Hz	∨	∨
UXGA@60Hz	∨	∨
1280×768@60Hz	∨	∨
1280×800@60Hz	∨	∨
1360×768@60Hz	∨	∨
1400×1050@60Hz	∨	∨
1440×900@60Hz	∨	∨
1680×1050@60Hz	∨	∨
1920×1200@60Hz (RB)	∨	∨

Specifications

Input Ports	3×HDMI, 3×VGA, 1×Component Video, 1×Composite Video, 2×RCA (Analog Stereo L/R), 6×3.5mm Mini-jack, 1×Extender, 1×USB (Service), 1×RJ45 (Control), 1×RS-232 (Control)
Output Ports	2×HDMI, 1×VGA/Component Video, 1×Coaxial, 1×3.5mm Mini-jack
Input Resolution Support	Up to UXGA & 1080p
Output Resolution Support	Up to WUXGA (RB) & 1080p
Power Supply	5 V/3 A DC (US/EU standards, CE/FCC/ UL certified)
Dimensions	432mm (W)×183mm (D)×47mm (H)
Weight	2,140g
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0℃ ~ 40℃/32℉ ~ 104℉
Storage Temperature	−20℃ ~ 60℃ / −4℉ ~ 140℉
Relative Humidity	20 ~ 90 % RH (non-condensing)
Power Consumption	11W

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Connection Diagram

PCs/Laptops

VGA and
Analog
Stereo Inputs

AV Receiver

Smartphone/
Tablet device

DVD Player

Coaxial
Digital
Audio
Output

Analog
Stereo
Audio
Output

Component
and Analog
Stereo Inputs

Modem/
Router

CAT Cable

RS-232
Equipped PC or
Control System

Power
Supply

IR
Extender

HDMI and
Analog
Stereo Inputs

Composite
and Analog
Stereo Inputs

Projector

HDMI
Outputs

DVD Player

Set-top Box

Blu-ray Player

Media Player

HDTV

VGA
Output

Monitor

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