CYP

CSC-5501
HDMI/DP/VGA to Dual HDMI Scaler

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

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.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REVISION	DATE	SUMMARY OF CHANGE
VS1	09/11/18	Final technical review

CONTENTS

1. INTRODUCTION

This Multi-Format Scaler has DisplayPort, HDMI and PC (VGA) inputs which can be freely selected for output at a scaled resolution of the user's choosing over the mirrored HDMI outputs. This unit also includes breakout analog and digital audio outputs to provide additional playback flexibility. Support for HDMI output resolutions up to 1080p/WUXGA (RB) and Analog to Digital Conversion (ADC) functionality combine to allow for a wide range of AV signals to be displayed on the connected HDMI displays.

Beyond video switching and scaling, this unit also features useful audio functions. An integrated audio DSP with gain control for routing audio and controlling background audio levels (LPCM 2.0 only) adds to the versatility of this product. This unit can be controlled via front panel buttons with an On-Screen Display (OSD), WebGUI, Telnet, and RS-232 making it exceptionally versatile.

2. APPLICATIONS

- Analog and Digital source integration
- Upscaling standard definition sources for high-definition displays
- Conference centers
- Lecture halls
- Schools and universities

3. PACKAGE CONTENTS

- 1×HDMI/DP/VGA to Dual HDMI Scaler
- 1×24V/2.7A DC Power Adapter
- 1×Power Cord
- 1×Remote Control (CR-176)
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

- HDMI, DisplayPort or VGA source equipment such as media players, video game consoles, PCs, or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI 1.3, DisplayPort 1.1, and DVI 1.0 compatible
- HDCP 1.x compliant
- Multiple video and audio inputs: 1 DisplayPort, 2 HDMI, 2 VGA, and 3 stereo audio
- Mirrored HDMI outputs
- Supports input and output resolutions up to 1080p/WUXGA (RB)
- Frame rate conversion support
- Analog to digital (ADC) and digital to analog (DAC) audio conversion, insertion and extraction
- Analog stereo and digital coaxial breakout audio outputs
- Supports pass-through of LPCM 2.0 audio
- Audio DSP with gain control for routing audio and controlling background audio levels
- Comprehensive EDID and HDCP management
- Remote control provides discrete input source selection
- Controllable via front panel controls with OSD, RS-232, Telnet, WebGUI, and IR remote

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
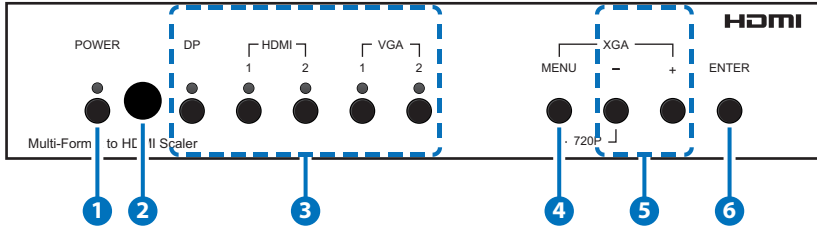
1 POWER Button & LED: Press this button to power the unit on (Green LED) or place it into stand-by mode (Red LED).

2 IR Window: Accepts IR signals from the included IR remote for control of this unit only.

3 DP/HDMI 1~2/VGA 1~2 Buttons & LEDs: Press any of these buttons to switch immediately to the corresponding input. An LED will illuminate to indicate which source is currently selected.

4 MENU Button: Press to enter the OSD menu, or to back out from menu items.

Note: Pressing and holding the "MENU" button while connecting the power supply will reset all settings to the factory defaults. Pressing "MENU" and "+" together will reset the output resolution to XGA (1024×768@60Hz). Pressing "Menu" and "−" together will reset the output resolution to 720p@60Hz.

5 − (MINUS) & + (PLUS) Buttons: Press to move up and down or adjust selections within menus.

Note: When not in the OSD, pressing "−" will activate the Auto Adjust function for VGA sources. Pressing "+" will briefly show the OSD information display.

6 ENTER Button: Press to confirm a selection within the OSD or to go deeper into a menu item.

6.2 Rear Panel
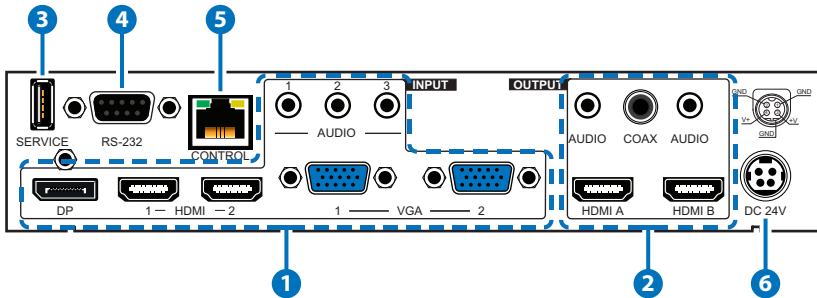
1 **DP INPUT Port:** Connect to DisplayPort source equipment such as a PC or laptop.

Note: In some rare cases, digital DisplayPort audio can't be supported. In those cases, please use analog audio input 1.

HDMI INPUT 1~2 Ports: Connect to HDMI source equipment such as media players, game consoles or set-top boxes.

VGA INPUT 1~2 Ports: Connect to VGA source equipment such as PCs or laptops.

AUDIO INPUT 1~3 Ports: Connect to the stereo analog outputs of devices such as CD players or PCs.

Note: In "Audio Follows Video" mode, Audio 1 maps to the digital inputs (DisplayPort, HDMI 1 & HDMI 2), Audio 2 maps to VGA 1 and Audio 3 maps to VGA 2.

2 **HDMI A~B OUTPUT Ports:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.

Note: Both outputs carry the same video and audio content.

AUDIO 1~2 OUTPUT Ports: Connect to powered speakers or an amplifier for stereo analog audio output.

Note: Both outputs carry the same audio content.

COAX OUTPUT Port: Connect to powered speakers or an amplifier for digital audio output using an appropriate coaxial cable.

3 **SERVICE Port:** This slot is reserved for firmware update use only.

4 **RS-232 Port:** Connect directly to a PC, laptop or other serial control device to send RS-232 commands to control the unit.

5 **CONTROL Port:** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.

6 **DC 24V Port:** Plug the 24V DC power adapter into this port and connect it to an AC wall outlet for power.

6.3 Remote Control

1 **POWER:** Press this button to power the unit on or place it into stand-by mode.

2 **DP/HDMI 1~2/PC 1~2:** Press any of these buttons to switch immediately to the corresponding input.

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/▲/▼/◄/► & VOL/−/+:** 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 (◄/►) buttons to control the volume level.

6 **AUTO ADJUST:** Press this button to activate the Auto Adjust function for VGA sources.

7 **RESET:** Press this button to reset the device back to the default settings.
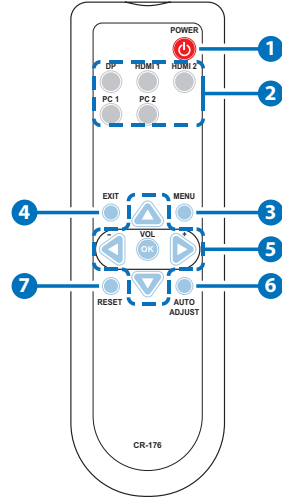
6.4 OSD Menu

All functions of this unit can be controlled by using the OSD (On Screen Display) which is activated by pressing the MENU button on the front of the unit. Use the + (PLUS), − (MINUS), and ENTER buttons to navigate the OSD menu. Press the MENU button to back out from any menu item and then press it again to close the menu.

MAIN MENU
Video
Picture
Audio
OSD
Ethernet
EDID
Reset
FW Update
Information

The individual functions of the OSD will be introduced in the following section. Items marked in **BOLD** are the factory default settings.

VIDEO		
2ND LEVEL	3RD LEVEL	4TH LEVEL
Video Routing	**DP**	
	HDMI1	
	HDMI2	
	VGA1	
	VGA2	
Output	Native - HDMI B	
	Native - HDMI A	
	640×480 60	
	800×600 60	
	1024×768 60	

VIDEO		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
Output	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	
	720×480p 60	
	1280×720p 60	
	1920×1080P 60	
	720×576p 50	
	1280×720p 50	
	1920×1080p 50	
	1920×1080p 24	
	1920×1080p 25	
	1920×1080p 30	
Aspect	Overscan	
	FULL	
	Best Fit	
	Pan Scan	
	Letterbox	
	Under 2	
	Under 1	
	Follow In	

VIDEO		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
DP HDCP	Off	
	Refer To Source	
	REFER TO DISPLAY	
HDMI1 HDCP	Off	
	Refer To Source	
	REFER TO DISPLAY	
HDMI2 HDCP	Off	
	Refer To Source	
	REFER TO DISPLAY	
No Signal Color	**BLACK**	
	White	
	Blue	
	Red	
	Green	
Blank	**OFF**	
	On	
Freeze	**OFF**	
	On	
Auto Setup	Auto Sync Off	**OFF**
		30s
		60s
		3 Min
		5 Min
		10 Min
	Auto Scan	**OFF**
		On
		From DP
		From HDMI1

VIDEO		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
Auto Setup	Auto Scan	From HDMI2
		From VGA1
		From VGA2
	Auto Switch	**OFF**
		On
VGA Setup	Auto Setup	[Current Status]
	H Position	0 ~ 250
	V Position	0 ~ 250
	Phase	0 ~ 250
	Clock	0 ~ 250 **(125)**
	Reset	

1) **Video Routing:** Selects the input source to display.

2) **Output:** Selects the output resolution to use. Selecting Native- HDMI A or Native-HDMI B will make the unit automatically select an output resolution based on the detected EDID of the connected display.

3) **Aspect:** Selects the aspect ratio to use when outputting the source. "Full" stretches the source to fill the output resolution, regardless of the original aspect ratio, while "Best Fit" will always attempt to retain the original source's correct aspect ratio by adding black bars if necessary. "Follow In" centers the source on the screen, without any scaling (1:1 pixel reproduction).

4) **DP HDCP:** Selects the HDCP logic to use with the DisplayPort input. Setting this to "Off" will completely disable HDCP support on that input.

5) **HDMI1 HDCP:** Selects the HDCP logic to use with HDMI input 1. Setting this to "Off" will completely disable HDCP support on that input.

6) **HDMI2 HDCP:** Selects the HDCP logic to use with HDMI input 2. Setting this to "Off" will completely disable HDCP support on that input.

7) **No Signal Color:** Selects the free run color to use when no live input source is detected.

8) **Blank:** Allows for the output video and audio to be blanked/muted.

9) **Freeze:** Allows for the output video to be frozen. While the output is frozen, audio output will also be muted.

10) **Auto Setup [submenu]**

   ■ **Auto Sync Off:** Sets the amount of time to continue outputting sync with the free run color if there is no live source and no operations have been executed on the unit. Setting this to "OFF" forces the unit to always output sync.

   ■ **Auto Scan:** Enable or disable the auto scan on source loss feature. Selecting a specific input will force the search to begin with that input.

   ■ **Auto Switch:** Enable or disable automatically switching to any newly detected source.

11) **VGA Setup:** These settings control the input specifications to use with the VGA inputs. Activating the Auto Setup function forces the unit to attempt to detect the correct values. Selecting reset will reset all VGA input settings.

   Note: The "Auto Setup" function requires a VGA source with a bright, edge-to-edge, image to accurately judge the dimensions of the signal.

PICTURE	
2ND LEVEL	**3RD LEVEL**
Color Gain R	0 ~ 1023 **(512)**
Color Gain G	0 ~ 1023 **(512)**
Color Gain B	0 ~ 1023 **(512)**
Color Offset R	0 ~ 1023 **(512)**
Color Offset G	0 ~ 1023 **(512)**
Color Offset B	0 ~ 1023 **(512)**
Brightness	0 ~ 60 **(30)**
Contrast	0 ~ 60 **(30)**
Hue	0 ~ 60 **(30)**

PICTURE	
2ND LEVEL	**3RD LEVEL**
Saturation	0 ~ 60 **(30)**
Sharpness	0 ~ 63 **(0)**
NR	**OFF**
	Low
	Middle
	High
	Auto
Reset Picture	

1) **Color Gain R/G/B:** These controls provide control over the red, green, and blue color gain level of the scaled output.

2) **Color Offset R/G/B:** These controls provide control over the red, green, and blue color offset level of the scaled output.

3) **Brightness:** Provides control over the overall brightness of the scaled output image.

4) **Contrast:** Provides control over the overall contrast of the scaled output image.

5) **Hue:** Provides control over the hue shift of the scaled output image.

6) **Saturation:** Provides control over the color saturation level of the scaled output image.

7) **Sharpness:** Provides control over the amount of sharpness processing to apply to the scaled output image.

8) **NR:** Provides control over the aggressiveness of the digital noise reduction processing when applied to the scaled output image. Selecting "Off" disables all noise reduction processing.

9) **Reset Picture:** Selecting this will reset all picture settings back to their factory defaults.

AUDIO	
2ND LEVEL	**3RD LEVEL**
Audio Routing	**FOLLOW VIDEO**
	Audio 1
	Audio 2
	Audio 3
HDMI Volume	0 ~ 100 **(80)**
Coax Volume	0 ~ 100 **(80)**
Analog Volume	0 ~ 100 **(80)**
HDMI Mute	**OFF**
	On
Coax Mute	**OFF**
	On
Analog Mute	**OFF**
	On
Audio Delay	**OFF**
	30ms
	40ms
	50ms
	60ms
	70ms
	80ms
	90ms
	100ms
	110ms
	120ms
	130ms
	140ms
	150ms
	160ms

AUDIO	
2ND LEVEL	**3RD LEVEL**
Audio Delay	170ms
	180ms
	190ms
	200ms
HDMI Audio Delay	Off
	ON
Coax Audio Delay	Off
	ON
Analog Audio Delay	Off
	ON
Reset Audio	

1) **Audio Routing:** Provides control over the analog audio routing in the unit. Selecting "Follow Video" maps analog audio 1 to all digital inputs (DisplayPort, HDMI 1 & HDMI 2), analog audio 2 to VGA 1 and analog audio 3 to VGA 2. Selecting "Audio 1", "Audio 2" or "Audio 3" will force the selected analog audio to be output regardless of the selected video source.

   Note: In "Follow Video" mode, digital inputs will only use the analog audio if no digital audio is detected from the selected source.

2) **HDMI Volume:** Provides control over both HDMI outputs' volume level.

3) **Coax Volume:** Provides control over the coaxial audio output's volume level.

4) **Analog Volume:** Provides control over both analog audio outputs' volume level.

5) **HDMI Mute:** Mutes or unmutes both HDMI outputs' audio.

6) **Coax Mute:** Mutes or unmutes the coaxial audio output.

7) **Analog Mute:** Mutes or unmutes both analog audio outputs.

8) **Audio Delay:** This control sets the amount of audio delay to use when audio delay has been enabled on any audio output.

Selecting "Off" will disable audio delay for all output types.

9) **HDMI Audio Delay:** Enable or disable audio delay for the HDMI outputs.

10) **Coax Audio Delay:** Enable or disable audio delay for the coaxial audio output.

11) **Analog Audio Delay:** Enable or disable audio delay for the analog audio output.

12) **Reset Audio:** Selecting this will reset all audio settings back to their factory defaults.

OSD	
2ND LEVEL	**3RD LEVEL**
H Position	0 ~ 60 **(30)**
V Position	0 ~ 60 **(30)**
Timer	**OFF**
	5s
	10s
	15s
	20s
	25s
	30s
	35s
	40s
	45s
	50s
	55s
	60s
Transparent	0 ~ 50 **(50)**
Display	Off
	On
	5S
	10s

OSD	
2ND LEVEL	**3RD LEVEL**
Reset OSD	

1) **H Position:** Set the horizontal position of the OSD menu.

2) **V Position:** Set the vertical position of the OSD menu.

3) **Timer:** Set the length of time to wait before automatically turning off the OSD menu if there is no user interaction. The timer may also be disabled.

4) **Transparent:** Set the transparency level of the OSD menu. A setting of 50 is completely opaque.

5) **Display:** Enable or disable the information display and set the length of time for the information display to be visible after a source or resolution change.

6) **Reset OSD:** Selecting this will reset all OSD settings back to their factory defaults.

ETHERNET	
2ND LEVEL	**3RD LEVEL**
IP Mode	**STATIC**
	DHCP
Telnet Login	**OFF**
	On
Setup Static IP	Static IP: **192.168.1.50**
	Mask: **255.255.255.0**
	Gate: **192.168.1.254**
IP	[Current Status]
MAC	

1) **IP Mode:** Select the IP address acquisition mode. When the unit is set to DHCP mode it will attempt to automatically obtain an IP address from a DHCP server. When set to Static mode the unit will use the user defined static IP information.

2) **Telnet Login:** Enable or disable requiring a login to control the unit via Telnet.

3) **Setup Static IP:** Manually set the IP address, netmask and gateway address to use when the unit is in Static IP mode.

4) **IP:** Displays the unit's current IP address.

5) **MAC:** Displays the unit's MAC address.

EDID	
2ND LEVEL	**3RD LEVEL**
DP EDID	1024×768 60
	1280×800 60
	1280×1024 60
	1366×768 60
	1440×900 60
	1400×1050 60
	1600×900 60
	1600×1200 60
	1680×1050 60
	1920×1200 60
	1280×720p 50
	1280×720p 60
	1920×1080p 50
	1920×1080p 60
	INT1
	User1
	User2
	User3
	Out-HDMI A
	Out-HDMI B
HDMI 1 EDID	1024×768 60
	1280×800 60
	1280×1024 60
	1366×768 60

EDID	
2ND LEVEL	**3RD LEVEL**
	1440×900 60
	1400×1050 60
	1600×900 60
	1600×1200 60
HDMI 1 EDID	1680×1050 60
	1920×1200 60
	1280×720p 50
	1280×720p 60
	1920×1080p 50
	1920×1080p 60
	INT1
	User1
	User2
	User3
	Out-HDMI A
	Out-HDMI B
HDMI 2 EDID	1024×768 60
	1280×800 60
	1280×1024 60
	1366×768 60
	1440×900 60
	1400×1050 60
	1600×900 60
	1600×1200 60
	1680×1050 60
	1920×1200 60
	1280×720p 50
	1280×720p 60

EDID	
2ND LEVEL	**3RD LEVEL**
	1920×1080p 50
	1920×1080p 60
	INT1
	User1
HDMI 2 EDID	User2
	User3
	Out-HDMI A
	Out-HDMI B
VGA 1 EDID	1024×768 60
	1280×800 60
	1280×1024 60
	1366×768 60
	1440×900 60
	1400×1050 60
	1600×900 60
	1600×1200 60
	1680×1050 60
	1920×1200 60
	1280×720p 50
	1280×720p 60
	1920×1080p 50
	1920×1080p 60
	INT2
	User4
	User5
VGA 2 EDID	1024×768 60
	1280×800 60
	1280×1024 60

EDID	
2ND LEVEL	**3RD LEVEL**
	1366×768 60
	1440×900 60
	1400×1050 60
	1600×900 60
VGA 2 EDID	1600×1200 60
	1680×1050 60
	1920×1200 60
	1280×720p 50
	1280×720p 60
	1920×1080p 50
	1920×1080p 60
	INT2
	User4
	User5
DP EDID Status	
HDMI1 EDID Status	
HDMI2 EDID Status	[Current EDID Selection]
VGA1 EDID Status	
VGA2 EDID Status	

1) **DP EDID:** Select the EDID to use with the DisplayPort input.

2) **HDMI1 EDID:** Select the EDID to use with the HDMI 1 input.

3) **HDMI2 EDID:** Select the EDID to use with the HDMI 2 input.

4) **VGA1 EDID:** Select the EDID to use with the VGA 1 input.

5) **VGA2 EDID:** Select the EDID to use with the VGA 2 input.

6) **DP/HDMI/VGA EDID Status:** Displays the current EDID used by each input.

RESET	
2ND LEVEL	**3RD LEVEL**
Reset All Picture	
Reset All	

1) **Reset All Picture:** Selecting this will reset all picture settings back to their factory defaults.

2) **Reset All:** Selecting this will reset all of the unit's settings back to their factory defaults.

FW UPDATE	
2ND LEVEL	**3RD LEVEL**
Update from USB	

1) **Update from USB:** Provides a way to update the unit's firmware. Insert a USB thumb drive, with a valid firmware file (*.bin format) in the root directory, into the unit's USB service port then select this option. After the update is complete the unit will automatically reboot.

INFORMATION	
2ND LEVEL	**3RD LEVEL**
Video	
Input	
Out - HDMI A	
Out - HDMI B	
Source HDCP	[Current Status Details]
Sink - HDMI A HDCP	
Sink - HDMI B HDCP	
Version	

1) **Information:** This screen displays information about the unit's current state, input and output status, as well as the current firmware version.

6.5 WebGUI Control

- **Application Software**

Please obtain the "Device Discovery" software from your authorized dealer and save it in a directory where you can easily find it.

Connect the unit and your PC/Laptop to the same active network and execute the "Device Discovery" software. Click on "Find Devices on Network" and a list of devices connected to the local network will show up indicating their current IP address.

Note: The unit's default IP address is 192.168.1.50.

By clicking on one of the listed devices you will be presented with the network details of that particular device.

1) **IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click "Save" followed by "Reboot".

2) **WebGUI Hotkey:** Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

- **WebGUI Overview**

After connecting to the WebGUI's address in a web browser, the login screen will appear. Please enter the appropriate user name and password then click "LOGIN" to log in.

Note: The default user name and password is "admin".

6.6.1 Main Page 0

All primary functions of this unit are controllable via the built-in WebGUI. This control is presented across 2 separate tabs (MainPage0 and MainPage1). After logging in, the browser will display the unit's primary control tab (MainPage0) to allow direct control of the unit. If desired, the numerical value for many of the items can be entered directly by typing it in the box above the slider bar. Press "Enter" to accept the newly entered value.

1) **Status:** This section provides information about the unit's current input, output and HDCP status as well as the current Firmware Revision.

2) **Video:** This section allows for control of input selection, output resolution, aspect ratio, HDCP behavior for the HDMI & DisplayPort inputs, the "no signal" color, blanking or freezing the output, as well as configuring the auto switch and sync functionality of the unit.

3) **Color:** This section provides detailed controls for the output R/G/B levels, contrast, saturation, brightness, hue, and sharpness as well as controlling noise reduction. To return these settings to their defaults, click on the "Reset Picture" EXE button.

4) **VGA:** This section allows for direct control of the H-position, V-position, phase, and clock used by the current VGA input. These settings can be automatically configured by clicking on the "Auto Setup" EXE button. To return these settings to their defaults, click on the "Reset" EXE button.

   Note: The VGA section is only active when a live VGA source is currently selected. These settings are shared by both VGA inputs.

5) **EDID:** This section allows the user to choose the EDID to be used with each input. It is also possible to upload custom user EDIDs here. User EDIDs 1-3 are only usable by the HDMI and DisplayPort inputs. User EDIDs 4-5 are only usable by the VGA inputs.

6.6.2 Main Page 1

Select the "MainPage1" tab to adjust settings related to audio output, the OSD, Ethernet, and power. System reset, authentication changes and firmware updates may also be performed from here. If desired, the numerical value for many of the items can be entered directly by typing it in the box above the slider bar. Press "Enter" to accept the newly entered value.

1) **Audio:** This section provides controls to set each individual audio output type's volume levels, and delay settings. Each output type may also be muted independently. When the Audio Source is set to "Follow Video" the analog audio inputs are mapped as follows: Audio 1 > Digital video (DisplayPort, HDMI 1 and HDMI 2), Audio 2 > VGA 1, Audio 3 > VGA 2.

    Note: All audio output types share the same unified delay value when audio delay is enabled.

2) **OSD:** This section lets the user change the H/V positioning of the OSD, the display timeout timer, and OSD window transparency. The information OSD's behavior is also controlled here with a choice between ON, OFF, 5 seconds and 10 seconds.

3) **Reset:** This section allows for resetting only the output picture settings, or returning the entire unit to its factory defaults.

4) **Power:** This section allows for the unit to be powered ON or placed into standby mode (OFF).

5) **Ethernet:** This section allows for setting the unit to either Static or DHCP mode for obtaining its IP information. When DHCP mode is selected, the unit will attempt to obtain an automatically assigned IP address from the local DHCP server. When in Static mode, the IP, Netmask and Gateway must be set manually. After making any

changes to this section, please click the "SAVE" button.

Note: If the IP address is changed then the IP address required for WebGUI or Telnet access will also change accordingly. Consult the OSD to view the current IP settings if necessary.

6) **FW Update:** This section allows for new firmware to be uploaded into the unit. To update the unit's firmware click the "Choose File" button to open the file selection window and then select an appropriate firmware update file (*.bin format) located on your local PC. After selecting the file, click the "Upload" button to begin the firmware update process. Once the firmware update process has completed the unit will reboot.

7) **Authentication:** This section allows for the admin login password to be changed. The default password is "admin". Requiring authentication to access Telnet may also be enabled or disabled here.

6.6 RS-232 Control

Serial Port Default Settings	
Baud Rate	115200
Data Bits	8
Parity Bit	None
Stop Bits	1
Flow Control	None

1 DCD
2 RxD
3 TxD
4 DTR
5 GND
9 RI
8 CTS
7 RTS
6 DSR
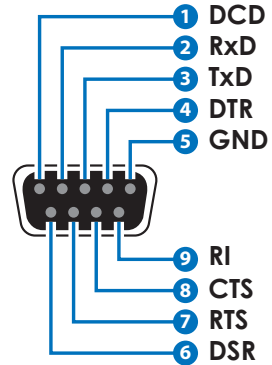
6.7 Telnet Control

Before attempting to use Telnet control, please ensure that both the unit and the PC are connected to the same active networks.

To Access the Command Line Interface (CLI)	
Windows 7	Click **Start**, type "cmd" in the search field, and press **Enter**.
Windows XP	Click **Start** > **Run**, type "cmd", and press **Enter**.
Mac OS X	Click **Go** > **Applications** > **Utilities** > **Terminal**.

Once in the Command Line Interface (CLI) type "**telnet**" followed by the IP address of the unit (and the port number if it is non-standard) and then hit "Enter". This will connect us to the unit we wish to control.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\Adminstrator\telnet 192.168.1.50 23
```

Note: The default IP address is 192.168.1.50. If the IP address is changed then the IP address required for Telnet access will also change accordingly.

6.8 RS-232 and Telnet Commands

COMMAND
Description and Parameters
?↵
Show the full command list.
help↵
Show the full command list.
get N1 ?↵
Show details about a specific command.
N1 = {Base Command String}
set system reboot↵
Reboot the unit.
set system default↵
Reset all configurations to the factory defaults.
get model name↵
Show the unit's model name.
get fw version↵
Show the unit's current firmware version.
get input port number↵
Report the number of inputs supported by the unit.
get output port number↵
Report the number of outputs supported by the unit.
set power N1↵
Turn the unit on or off (stand-by mode).
Available values for **N1**: 0   [Off (Stand-by)] 1   [On]
get power↵
Show the current power state.

COMMAND
Description and Parameters
set ip mode N1↵
Set the IP address assignment mode. Available values for **N1**: 0   [Static IP mode] 1   [DHCP mode]
get ip mode↵
Show the current IP mode.
set ip addr N1↵
Set the static IP address. **N1** = X.X.X.X   [X = 0 ~ 255]
get ip addr↵
Show the current IP address.
get static ip address↵
Show the current static IP address.
set netmask N1↵
Set the static netmask address. **N1** = X.X.X.X   [X = 0 ~ 255]
get netmask↵
Show the current netmask.
set gateway N1↵
Set the static gateway address. **N1** = X.X.X.X   [X = 0 ~ 255]
get gateway↵
Show the current gateway.
get mac addr↵
Show the unit's MAC address.

COMMAND
Description and Parameters
set int edid 1 to input N1↵
Assign Internal EDID 1 to input **N1**. Available values for **N1**: 1   [DisplayPort] 2   [HDMI 1] 3   [HDMI 2] ALL   [All 3 digital inputs]
set int edid 2 to input N1↵
Assign Internal EDID 2 to input **N1**. Available values for **N1**: 4   [VGA 1] 5   [VGA 2] ALL   [Both analog inputs]
get int edid N1 data↵
List Internal EDID **N1**'s EDID data in ASCII HEX. **N1** = 1 ~ 2   [Internal EDID number]
set native edid N1 to input N2↵
Assign Native EDID **N1** to input **N2**. Available values for **N1**: 0   [1024×768@60 EDID] 1   [1280×800@60 EDID] 2   [1280×1024@60 EDID] 3   [1366×768@60 EDID] 4   [1440×900@60 EDID] 5   [1400×1050@60 EDID] 6   [1600×900@60 EDID] 7   [1600×1200@60 EDID] 8   [1680×1050@60 EDID] 9   [1920×1200@60 EDID] 10   [1280×720P@ 50 EDID] 11   [1280×720P@60 EDID] 12   [1920×1080P@50 EDID] 13   [1920×1080P@60 EDID]

COMMAND
Description and Parameters
Available values for **N2**: 1   [DisplayPort] 2   [HDMI 1] 3   [HDMI 2] 4   [VGA 1] 5   [VGA 2] ALL   [All inputs]
set user edid N1 to input N2↵
Assign User EDID **N1** to input **N2**. Available values for **N1**: 1   [User EDID 1] 2   [User EDID 2] 3   [User EDID 3] 4   [User EDID 4] 5   [User EDID 5] Available values for **N2**: 1   [DisplayPort] 2   [HDMI 1] 3   [HDMI 2] 4   [VGA 1] 5   [VGA 2] ALL   [All valid inputs] *Note: User EDIDs 1 ~ 3 can only be assigned to digital inputs. User EDIDs 4 ~ 5 can only be assigned to analog inputs.*
get user edid N1 data↵
List User EDID **N1**'s EDID data in ASCII HEX. **N1** = 1 ~ 5   [Internal EDID number]

COMMAND
Description and Parameters
set sink edid [N1] to input N2↵
Assign output **N1**'s EDID to input **N2**.
Available values for **N1**:
A   [HDMI output A]
B   [HDMI output B]
Available values for **N2**:
1   [DisplayPort]
2   [HDMI 1]
3   [HDMI 2]
ALL   [All digital inputs]
get sink edid [N1] data↵
List output **N1**'s EDID data in ASCII HEX.
Available values for **N1**:
A   [HDMI output A]
B   [HDMI output B]
get input edid N1 data↵
List input **N1**'s assigned EDID data in ASCII HEX.
Available values for **N1**:
1   [DisplayPort]
2   [HDMI 1]
3   [HDMI 2]
4   [VGA 1]
5   [VGA 2]
set input N1 hdcp mode N2↵
Set the HDCP handling method to use with input **N1**.
Available values for **N1**:
1   [DisplayPort]
2   [HDMI 1]
3   [HDMI 2]
Available values for **N2**:
0   [Off]
1   [Refer to source]
2   [Refer to display]

COMMAND
Description and Parameters
get input N1 hdcp mode↵

Show the HDCP handling method currently used by input **N1**.

Available values for **N1**:
1	[DisplayPort]
2	[HDMI 1]
3	[HDMI 2]

set audio route N1↵

Set the audio routing method.

Available values for **N1**:
0	[Follow video]
1	[Analog audio 1]
2	[Analog audio 2]
3	[Analog audio 3]

get audio route↵

Show the current audio routing setting.

set audio [N1] mute N2↵

Enable or disable audio muting for output type **N1**.

Available values for **N1**:
A	[HDMI]
B	[Coaxial]
C	[Analog audio]

Available values for **N2**:
0	[Off]
1	[On]

get audio [N1] mute↵

Show the current audio mute setting for output type **N1**.

Available values for **N1**:
A	[HDMI]
B	[Coaxial]
C	[Analog audio]

COMMAND
Description and Parameters
set audio all mute N1↵
Enable or disable audio muting for all output types. Available values for **N1**: 0   [Off] 1   [On]
set audio [N1] volume N2↵
Set the audio volume for output type **N1**. Available values for **N1**: A   [HDMI] B   [Coaxial] C   [Analog audio] **N2** = 0 ~ 100   [Volume level]
get audio [N1] volume↵
Show the current volume setting for output type **N1**. Available values for **N1**: A   [HDMI] B   [Coaxial] C   [Analog audio]
set audio [N1] volume up↵
Increase the volume of audio type **N1** by 1 unit. Available values for **N1**: A   [HDMI] B   [Coaxial] C   [Analog audio]
set audio [N1] volume down↵
Decrease the volume of audio type **N1** by 1 unit. Available values for **N1**: A   [HDMI] B   [Coaxial] C   [Analog audio]

COMMAND
Description and Parameters
set audio delay N1↵

Set the global audio delay setting.

Available values for **N1**:
0	[Off]
1	[30ms]
2	[40ms]
3	[50ms]
4	[60ms]
5	[70ms]
6	[80ms]
7	[90ms]
8	[100ms]
9	[110ms]
10	[120ms]
11	[130ms]
12	[140ms]
13	[150ms]
14	[160ms]
15	[170ms]
16	[180ms]
17	[190ms]
18	[200ms]

get audio delay↵

Show the current global audio delay setting.

set audio [N1] delay enable N2↵

Enable or disable audio delay on output type **N1**.

Available values for **N1**:
A	[HDMI]
B	[Coaxial]
C	[Analog audio]

Available values for **N2**:
0	[Off]
1	[On]

COMMAND
Description and Parameters
get audio [N1] delay enable↵
Show the current audio delay setting for output type **N1**. Available values for **N1**: A   [HDMI] B   [Coaxial] C   [Analog audio]
set scaler [A] input source N1↵
Select the input source. Available values for **N1**: 1   [DisplayPort] 2   [HDMI 1] 3   [HDMI 2] 4   [VGA 1] 5   [VGA 2]
get scaler [A] input source↵
Show the current input source.
get scaler [A] input timing↵
Show the video timing of the current input source.

COMMAND
Description and Parameters
set scaler [A] output timing N1↵

Set the scaled output resolution.

Available values for **N1**:

0	[Native - HDMI A]
1	[Native - HDMI B]
2	[640×480@60Hz]
3	[800×600@60Hz]
4	[1024×768@60Hz]
5	[1280×768@60Hz]
6	[1360×768@60Hz]
7	[1280×720@60Hz]
8	[1280×800@60Hz]
9	[1280×1024@60Hz]
10	[1440×900@60Hz]
11	[1400×1050@60Hz]
12	[1680×1050@60Hz]
13	[1600×1200@60Hz]
14	[1920×1080@60Hz]
15	[1920×1200@60Hz]
16	[720×480p@60Hz]
17	[1280×720p@60Hz]
18	[1920×1080P@60Hz]
19	[720×576p@50Hz]
20	[1280×720p@50Hz]
21	[1920×1080p@50Hz]
22	[1920×1080p@24Hz]
23	[1920×1080p@25Hz]
24	[1920×1080p@30Hz]

get scaler [A] output timing↵

Show the current scaled output resolution.

COMMAND
Description and Parameters
set scaler [A] aspect ratio N1↵

Set the output aspect ratio.

Available values for **N1**:

0	[Overscan]
1	[Full]
2	[Best fit]
3	[Pan & scan]
4	[Letterbox]
5	[Underscan 2]
6	[Underscan 1]
7	[Follow input]

get scaler [A] aspect ratio↵

Show the current output aspect ratio.

set scaler [A] auto sync off N1↵

Enable or disable the auto sync off function and set the time to wait before turning off sync when enabled.

Available values for **N1**:

0	[Off]
1	[30 seconds]
2	[60 seconds]
3	[3 minutes]
4	[5 minutes]
5	[10 minutes]

get scaler [A] auto sync off↵

Show the current auto sync off function's setting.

set scaler [A] no signal color N1↵

Set the free run color to use when there is no live source.

Available values for **N1**:

0	[Black]
1	[White]
2	[Blue]
3	[Red]
4	[Green]

COMMAND
Description and Parameters
get scaler [A] no signal color↵
Show the currently selected free run color.
set scaler [A] blank N1↵
Enable or disable blanking the video/audio output.
Available values for **N1**:
0   [Off]
1   [On]
Note: When enabled, sync will continue to be sent with the black screen.
get scaler [A] blank↵
Show the current output blanking function's state.
set scaler [A] freeze N1↵
Enable or disable freezing the video output.
Available values for **N1**:
0   [Off]
1   [On]
Note: Freezing the video will also mute the audio.
get scaler [A] freeze↵
Show the current video freeze function's state.
set input auto scan N1↵
Enable or disable the auto scan on signal loss function. Selecting a specific input will force the scan to begin with that input.
Available values for **N1**:
0   [Off]
1   [On]
2   [DisplayPort]
3   [HDMI 1]
4   [HDMI 2]
5   [VGA 1]
6   [VGA 2]

COMMAND

Description and Parameters

get input auto scan↵

Show the current auto scan setting.

set input auto switch N1↵

Enable or disable the auto input switch function.

Available values for **N1**:
0	[Off]
1	[On]

get input auto switch↵

Show the current auto input switch setting.

set input N1 vga auto↵

Activate the VGA auto setup function for input **N1**.

Available values for **N1**:
4	[VGA 1]
5	[VGA 2]

Note: This function requires a VGA source with a bright, edge-to-edge, image to accurately judge the dimensions of the signal.

get input N1 vga auto↵

Show the current status of the VGA auto setup function on input **N1**.

Available values for **N1**:
4	[VGA 1]
5	[VGA 2]

set input N1 vga h position N2↵

Set the horizontal position for input **N1** (VGA inputs only).

Available values for **N1**:
4	[VGA 1]
5	[VGA 2]
N2 = 0 ~ 250	[Horizontal position]

COMMAND
Description and Parameters
get input N1 vga h position↵
Show the current horizontal position of input **N1**.
Available values for **N1**: 4   [VGA 1] 5   [VGA 2]
set input N1 vga v position N2↵
Set the vertical position for input **N1** (VGA inputs only).
Available values for **N1**: 4   [VGA 1] 5   [VGA 2] **N2** = 0 ~ 250   [Vertical position]
get input N1 vga v position↵
Show the current vertical position of input **N1**.
Available values for **N1**: 4   [VGA 1] 5   [VGA 2]
set input N1 vga phase N2↵
Set the phase for input **N1** (VGA inputs only).
Available values for **N1**: 4   [VGA 1] 5   [VGA 2] **N2** = 0 ~ 250   [Phase]
get input N1 vga phase↵
Show the current phase of input **N1**.
Available values for **N1**: 4   [VGA 1] 5   [VGA 2]

COMMAND
Description and Parameters
set input N1 vga clock N2↵
Set the clock for input **N1** (VGA inputs only). Available values for **N1**: 4   [VGA 1] 5   [VGA 2] **N2** = 0 ~ 250   [Clock]
get input N1 vga clock↵
Show the current clock of input **N1**. Available values for **N1**: 4   [VGA 1] 5   [VGA 2]
set input N1 vga reset↵
Reset the VGA settings for input **N1** (VGA inputs only). Available values for **N1**: 4   [VGA 1] 5   [VGA 2]
set scaler [A] osd h position N1↵
Set the horizontal position of the OSD. **N1** = 0 ~ 60   [Horizontal position]
get scaler [A] osd h position↵
Show the current horizontal position of the OSD.
set scaler [A] osd v position N1↵
Set the vertical position of the OSD. **N1** = 0 ~ 60   [Vertical position]
get scaler [A] osd v position↵
Show the current vertical position of the OSD.

COMMAND
Description and Parameters
set scaler [A] osd timeout N1↵
Set the OSD menu timeout length, or disable the timeout.
Available values for **N1**:

Available values for **N1**:
0	[Off]
1	[5 seconds]
2	[10 seconds]
3	[15 seconds]
4	[20 seconds]
5	[25 seconds]
6	[30 seconds]
7	[35 seconds]
8	[40 seconds]
9	[45 seconds]
10	[50 seconds]
11	[55 seconds]
12	[60 seconds]

get scaler [A] osd timeout↵
Show the current OSD menu timeout setting.
set scaler [A] osd transparency N1↵
Set the transparency level for the OSD menu.
N1 = 0 ~ 50   [Transparency]
get scaler [A] osd transparency↵
Show the current OSD menu transparency level.
set scaler [A] osd info display N1↵
Enable, disable, or set a timeout for the OSD information display.
Available values for **N1**:

Available values for **N1**:
0	[Off]
1	[On]
2	[5 seconds]
3	[10 seconds]

get scaler [A] osd info display↵
Show the current OSD information display setting.

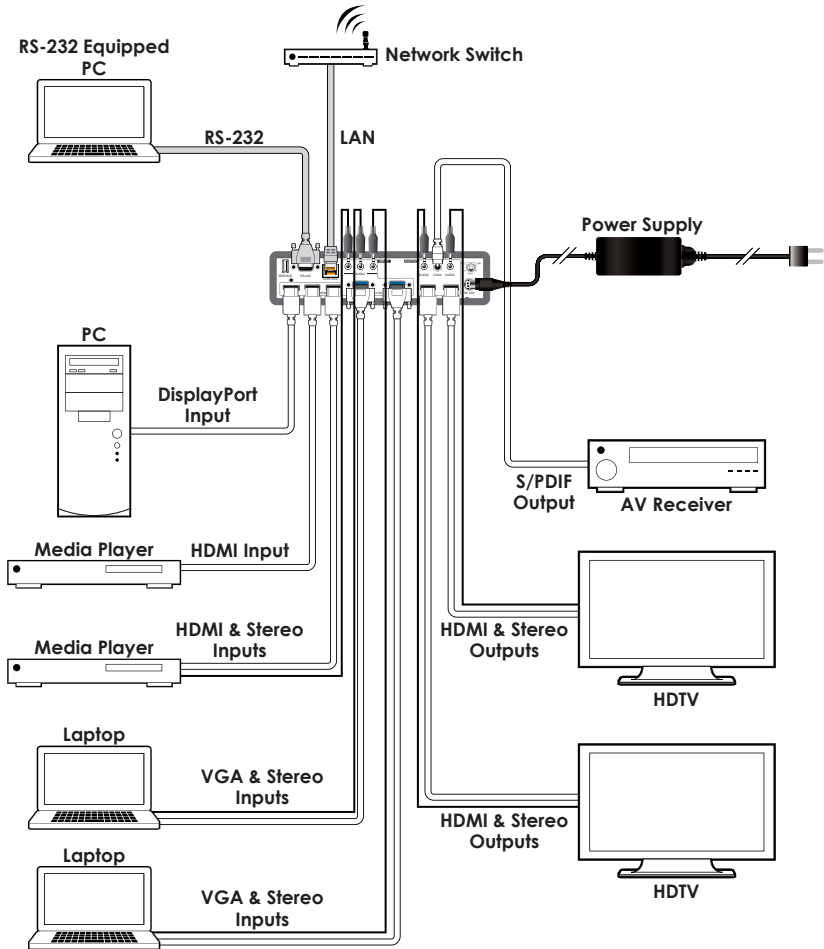| COMMAND |
|---|
| **Description and Parameters** |
| **set scaler [A] r gain N1**↵ |
| Set the output's red gain level. |
| **N1** = 0 ~ 1023   [Red gain] |
| **get scaler [A] r gain**↵ |
| Show the current red gain output level. |
| **set scaler [A] g gain N1**↵ |
| Set the output's green gain level. |
| **N1** = 0 ~ 1023   [Green gain] |
| **get scaler [A] g gain**↵ |
| Show the current green gain output level. |
| **set scaler [A] b gain N1**↵ |
| Set the output's blue gain level. |
| **N1** = 0 ~ 1023   [Blue gain] |
| **get scaler [A] b gain**↵ |
| Show the current blue gain output level. |
| **set scaler [A] r offset N1**↵ |
| Set the output's red offset level. |
| **N1** = 0 ~ 1023   [Red offset] |
| **get scaler [A] r offset**↵ |
| Show the current red offset output level. |
| **set scaler [A] g offset N1**↵ |
| Set the output's green offset level. |
| **N1** = 0 ~ 1023   [Green offset] |
| **get scaler [A] g offset**↵ |
| Show the current green offset output level. |
| **set scaler [A] b offset N1**↵ |
| Set the output's blue offset level. |
| **N1** = 0 ~ 1023   [Blue offset] |

COMMAND
Description and Parameters
get scaler [A] b offset↵
Show the current blue offset output level.
set scaler [A] brightness N1↵
Set the output's brightness level.
N1 = 0 ~ 60   [Brightness]
get scaler [A] brightness↵
Show the output's current brightness level.
set scaler [A] contrast N1↵
Set the output's contrast level.
N1 = 0 ~ 60   [Contrast]
get scaler [A] contrast↵
Show the output's current contrast level.
set scaler [A] hue N1↵
Set the output's hue setting.
N1 = 0 ~ 60   [Hue]
get scaler [A] hue↵
Show the output's current hue setting.
set scaler [A] saturation N1↵
Set the output's saturation level.
N1 = 0 ~ 60   [Saturation]
get scaler [A] saturation↵
Show the output's current saturation level.
set scaler [A] sharpness N1↵
Set the output's sharpness level.
N1 = 0 ~ 63   [Sharpness]
get scaler [A] sharpness↵
Show the output's current sharpness level.

COMMAND
Description and Parameters
set scaler [A] nr N1↵
Set the amount of noise reduction to apply to the output. Available values for **N1**: 0   [Off] 1   [Low] 2   [Middle] 3   [High] 4   [Auto]
get scaler [A] nr↵
Show the current noise reduction setting.

Note 1: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive. Spaces between command segments are not required.

Note 2: Certain commands include the characters [ ]. These characters must be included, where indicated, for the command to be accepted.

7. CONNECTION DIAGRAM

RS-232 Equipped PC

Network Switch

RS-232

LAN

Power Supply

PC

DisplayPort Input

S/PDIF Output

AV Receiver

Media Player

HDMI Input

Media Player

HDMI & Stereo Inputs

HDMI & Stereo Outputs

HDTV

Laptop

VGA & Stereo Inputs

HDMI & Stereo Outputs

Laptop

VGA & Stereo Inputs

HDTV

8. SPECIFICATIONS

8.1 Technical Specifications

Input Bandwidth	165MHz/4.95Gbps
Input Ports	1×DisplayPort 2×HDMI 2×VGA (HD-15) 3×Analog Stereo (3.5mm)
Output Ports	2×HDMI 1×Digital S/PDIF (RCA) 2×Analog Stereo (3.5mm)
Control Ports	1×RS-232 (DE-9) 1×LAN (RJ-45)
Baud Rate	115200
Power Supply	24V/2.7A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions	215mm×42mm×144mm (W×H×D) [Case Only] 215mm×47mm×153mm (W×H×D) [All Inclusive]
Weight	1,066g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	6W

8.2 Video Specifications

Supported Resolutions (Hz)	Input			Output
	HDMI	DP	VGA	Scaled HDMI
720×400@85	✓	✓	✓	✗
720×480i@60	✓	✗	✗	✗
720×480p@60	✓	✓	✓	✓
640×480@60/72/75/85	✓	✓	✓	60
720×576i@50	✓	✗	✗	✗
720×576p@50	✓	✓	✓	✓
800×600@56/60/72/75/85	✓	✓	✓	60
1280×720@50/60	✓	✓	✓	✓
1024×768@60/70/75/85	✓	✓	✓	60
1280×768@60/75	✓	✓	✓	60
1360×768@60	✓	✓	✓	✓
1366×768@60	✓	✓	✓	✗
1280×800@60	✓	✓	✓	✓
1152×864@75	✓	✓	✓	✗
1440×900@60	✓	✓	✓	✓
1280×960@60	✓	✓	✓	✗
1280×1024@60	✓	✓	✓	✓
1400×1050@60	✓	✓	✓	✗
1680×1050@60 (RB)/60	✓	✓	✓	60
1920×1080i@50/60	✓	✓	✓	✗
1920×1080p@24/25/30/50/60	✓	✓	✓	✓
1600×1200@60	✓	✓	✓	✓
1920×1200@60 (RB)	✓	✓	✓	✓

8.3 Audio Specifications

Analog Input	
Max Audio Level	2Vrms
Impedance	<100kΩ
Type	Unbalanced

Analog Output	
Max Audio Level	2Vrms
THD+N	< −60dB@0dBFS 1kHz (A-wt)
SNR	> 70dB@0dBFS
Frequency Response	< ±3dB@20Hz~20kHz
Crosstalk	< −60dB@10kHz
Impedance	470Ω
Type	Unbalanced

HDMI Input/Output	
LPCM	
Max Channels	2 Channels
Sampling Rate (kHz)	48
Bitstream	
Supported Formats	None

S/PDIF Output	
LPCM	
Max Channels	2 Channels
Sampling Rate (kHz)	48
Bitstream	
Supported Formats	None

8.4 Cable Specifications

	1080p
Cable Length	**8-bit**
High Speed HDMI Cable	
HDMI Input	10m
HDMI Output	10m
DisplayPort Cable	
DisplayPort Input	5m

9. ACRONYMS

ACRONYM	COMPLETE TERM
ADC	Analog-to-Digital Converter
ASCII	American Standard Code for Information
AV	Audio/Video
CLI	Command-Line Interface
COAX	Coaxial
DAC	Digital-to-Analog Converter
DHCP	Dynamic Host Configuration Protocol
DP	DisplayPort
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
GUI	Graphical User Interface
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
IP	Internet Protocol
IR	Infrared
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
OSD	On-Screen Display
PC	Personal Computer
S/PDIF	Sony/Philips Digital Interface Format
SNR	Signal-to-Noise Ratio
THD+N	Total Harmonic Distortion plus Noise
USB	Universal Serial Bus

ACRONYM	COMPLETE TERM
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array