CYP ///

⚫HDBT®

EL-5400-HBT

HDMI / VGA / Display Port Presentation Switch & Scaler with HDMI & HDBaseT™ LITE Outputs

/// **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.

REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
v2.00	10/08/2018	First release

CONTENTS

1. INTRODUCTION

This HDMI/DP/HDBaseT to HDMI/HDBaseT Scaler supports five inputs including HDMI, VGA, and DisplayPort. Any selected source will be scaled to your preferred resolution for output over HDMI and HDBaseT. HD resolutions up to 1080p@60Hz are supported. This unit also provides audio application flexibility by including multiple unbalanced audio inputs, a 1/4" mic input (with support for optional 48V phantom power) and one line out port.

This unit contains an audio DSP engine with auto-mixer and auto-gain functionality, allowing for the mic source to be mixed with the audio from one of the video sources while reducing the background audio in order to enhance the primary audio source. The HDBaseT output provides 24V PoC (Power over Cable) allowing compatible PoC powered HDBaseT Receivers to operate without needing a local power connection. This unit can be easily controlled and configured through the front panel with OSD, IR remote control, RS-232, Telnet, or WebGUI. This unit is an ideal solution for presentations in classrooms and conference rooms.

2. APPLICATIONS

- ▰ Analogue and digital source integration
- ▰ Upscaling standard definition video for high-definition displays
- ▰ Conference centers
- ▰ Lecture halls
- ▰ Schools and universities

3. PACKAGE CONTENTS

- ▰ 1×HDMI/DP/VGA to HDMI/HDBaseT Scaler
- ▰ 1×Remote Control (CR-165)
- ▰ 1×IR Blaster Cable
- ▰ 1×IR Extender Cable
- ▰ 1×19" Rack Mounting Kit
- ▰ 1×15-pin D-sub Male to 3 RCA Cable
- ▰ 1×3.5mm to 9-pin D-sub Male Cable
- ▰ 1×6-pin Terminal Block
- ▰ 1×24V/1.25A Power Adaptor

/// 1×Operation Manual

4. SYSTEM REQUIREMENTS

/// Source equipment such as media players, video game consoles, PCs, or set-top boxes.

/// HDMI receiving equipment such as HDTVs, monitors or audio amplifiers and/or a compatible HDBaseT Receiver with 24V PoC support.

/// The use of industry standard Cat.6, Cat.6a or Cat.7 cable is highly recommended.

/// The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

/// HDMI, DVI and DisplayPort compliant

/// HDCP 1.4 compliant

/// Multiple video and audio inputs: 2×HDMI, 2×VGA,1×DisplayPort, 3×Unbalanced audio, 1×Mic audio (w/ 48V phantom power option)

/// HDMI and HDBaseT outputs (mirrored)

/// Inputs support HD resolutions up to 1080p@60Hz and PC resolutions from VGA to WUXGA

/// Outputs support resolutions up to 1080p@60Hz

/// Supports pass-through of LPCM 2.0 audio

/// Audio DSP with auto mixer and gain control for mixing audio and reducing background audio

/// HDBaseT feature support: High-Definition video and audio, 24V PoC (Power over Cable) and control (Bi-directional IR & RS-232 pass through)

/// HDBaseT output provides 24V PoC to power to compatible HDBaseT Receivers

/// EDID management support

/// Supports IR In and IR Out to receive or transmit IR signals from compatible Receivers with bi-directional IR

/// Remote control provides discrete input source selection

/// Supports control via WebGUI, Telnet, IR remote and RS-232

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
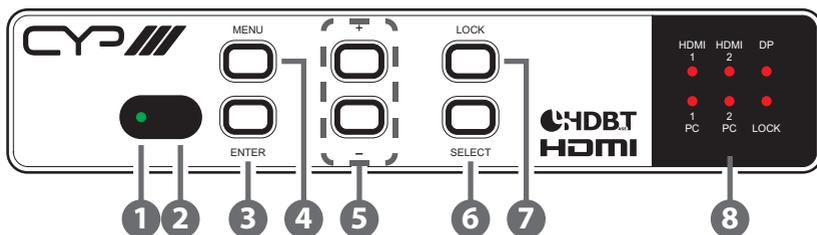
1 **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.

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

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

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

5 **-/+ (MINUS/PLUS):** Press to move up and down or adjust selections within OSD menus.

Note: Pressing "Menu" and "+" together will reset the output resolution to XGA@60Hz (1024×768). Pressing "Menu" and "-" together will reset the output resolution to 720p@60Hz.

6 **SELECT:** Press this button to sequentially switch through the available inputs.

7 **LOCK:** Press to lock all button functions on the front panel. Press again to release the lock function. The "LOCK" LED will be lit when the front panel is in the locked state.

8 **LEDs:** These LEDs indicate the currently selected source as well as the current front panel lock state.

6.2 Rear Panel
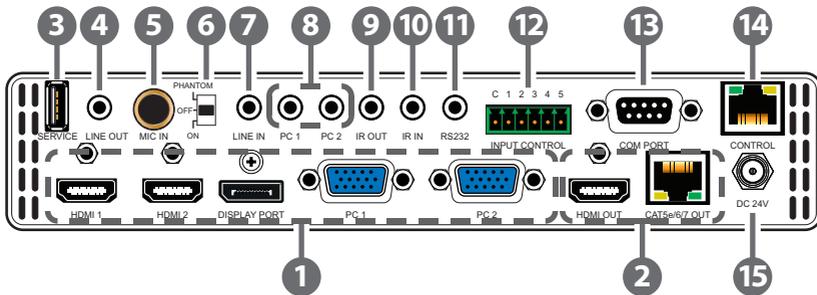
1 HDMI IN 1~2: Connect to HDMI source equipment such as a media players, game consoles or set-top boxes.

DisplayPort IN: Connect to DisplayPort source equipment such as a PC or laptop.

PC IN 1~2: Connect to VGA source equipment such as a PC or laptop. YUV sources, such as DVD players, are also supported with the use of a 15-pin to 3-RCA adapter when the port has the "COMP IN" mode turned on in the OSD.

2 HDMI OUT: Connect to an HDMI TV, monitor or amplifier for digital video and audio output.

CAT5e/6/7 OUT: Connect to a compatible, 24V PoC supporting, HDBaseT Receiver for remote video and audio output.

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

4 LINE OUT: Connect to powered speakers or an amplifier for stereo analogue audio output.

5 MIC IN: Connect a microphone for direct audio input. Phantom power mics are supported.

6 PHANTOM/OFF/ON: Set the switch to "ON" for condenser mics (5V) or "PHANTOM" for professional 48V phantom power mics. When the switch is set to "OFF" the MIC input will be muted.

7 LINE IN: Connect to the stereo analogue output of a device such as a CD player or PC. This audio will be used in place of the HDMI/DP audio when "external" audio is selected in the OSD menu.

8 PC 1~2: Connect to the stereo analogue output of the device connected to the associated VGA input port.

9 **IR OUT:** Connect to the provided IR Blaster to transmit IR signals to devices within direct line-of-sight of the IR Blaster.

10 **IR IN:** Connect to the provided IR Extender to extend the IR control range of remotely located devices. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

11 **RS-232:** Connect to a PC, laptop or other serial control device for the extension of RS-232 signals to the connected HDBaseT Receiver.

12 **INPUT CONTROL:** This terminal block is used for direct source input selection. Short the ground pin (marked as "C") with any one of the following pins to make an individual source selection (Pin 1=HDMI IN 1, Pin 2=HDMI IN 2, Pin 3= DisplayPort IN, Pin 4=PC 1, and Pin 5= PC 2).

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

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

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

6.3 Remote Control

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

2 **MENU:** Access the OSD menu.

3 **EXIT:** Exit the OSD menu.

4 ▲/▼: Navigate up/down within the OSD menu items.

◄/► **& VOL -/+:** Adjust the selected item's parameters (+) or (-) within the OSD menu or adjust output volume.

OK: Confirm your selections within the OSD menu.

5 **AUTO ADJUST:** Automatically adjust and center analogue PC sources.

6 **RESET:** Return to factory default settings. (Ethernet settings are not changed.)
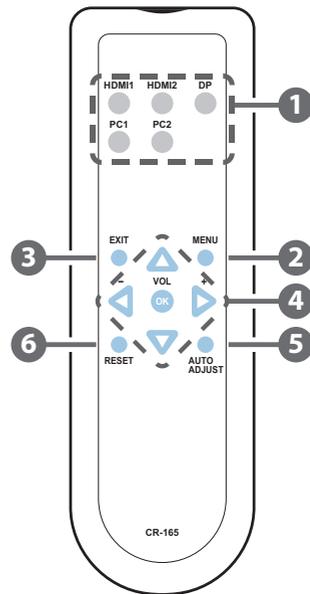
6.4 OSD Menu

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
DISPLAY	SOURCE	**HDMI1**	
		HDMI2	
		DP	
		PC1	
		PC2	
	SIZE	OVER SCAN	
		FULL	
		FOLLOW INPUT	
		PAN SCAN	
		LETTER BOX	
		UNDER 2	
		UNDER 1	
	RESOLUTION	640×480	
		800×600	
		1024×768	
		1280×768	
		1360×768	
		1280×720	
		1280×800	
		1280×1024	
		1440×900	
		1400×1050	
		1680×1050	
		1600×1200	
		1920×1080	
		1920×1200	
		720×480P	
		1280×720P60	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
DISPLAY(CONT.)	RESOLUTION(CONT.)	1920×1080i60	
		1920×1080P60	
		720×576P	
		1280×720P50	
		1920×1080i50	
		1920×1080P50	
		NATIVE OUT1	
		NATIVE OUT2	
	HDCP ON INPUT	HDMI1	**ON**
			OFF
		HDMI2	**ON**
			OFF
		DP	**ON**
			OFF
	COMP IN PC [Enable YUV support]	COMP IN PC1	ON
			OFF
		COMP IN PC2	ON
			OFF
PICTURE	CONTRAST	0~60 **(30)**	
	BRIGHTNESS	0~60 **(30)**	
	RED	0~1023 **(512)**	
	GREEN	0~1023 **(512)**	
	BLUE	0~1023 **(512)**	
	HUE*	0~60 **(30)**	
	SATURATION*	0~60 **(30)**	
	SHARPNESS*	0~60 **(10)**	
	NOISE REDUCTION*	**OFF**	
		LOW	
		MIDDLE	
		HIGH	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
PICTURE (CONT.)	FINETUNE**	AUTO ADJUST	**NO**/YES
		H-POSITION	0~60 **(30)**
		V-POSITION	0~60 **(30)**
		PHASE	0~30 **(16)**
		CLOCK	700~2300 **(1344)**
		WXGA/XGA	WXGA
			XGA
		RESET	**NO**/YES
AUDIO	MIXER	**OFF**	
		MIC	
	MIC VOLUME	0~100 **(70)**	
	DELAY	**OFF**	
		40ms	
		110ms	
	DELAY	150ms	
	MUTE	**OFF**	
		ON	
	OUTPUT VOLUME	0~100 **(80)**	
	EMBEDDED AUDIO	HDMI1	**AUTOMATIC**
			EMBEDDED
			Analogue
		HDMI2	**AUTOMATIC**
			EMBEDDED
			Analogue
		DP	**AUTOMATIC**
			EMBEDDED
			Analogue
	INPUT VOLUME	HDMI1	0~100 **(100)**
		HDMI2	0~100 **(100)**
		DP	0~100 **(100)**

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
AUDIO (CONT.)	INPUT VOLUME (CONT.)	PC1	0~100 **(100)**
		PC2	0~100 **(100)**
MISCELLANY	AUTO INPUT	**OFF**	
		SCAN ALL	
	AUTO SYNC OFF	**OFF**	
		FAST [10sec]	
		SLOW [120sec]	
	OSD	H POSITION	1~100 **(50)**
		V POSITION	1~100 **(50)**
		TIMER	10~100sec **(100)**
		TRANSPARENCY	1~100 **(50)**
		DISPLAY	INFO
			ON
			OFF
	ETHERNET	IP MODE	**STATIC**
			DHCP
		IP ADDRESS	0~255
		SUBNET	0~255
		GATEWAY	0~255
		CONTROL PORT	1~65535 **(50000)**
		MAC ADDRESS	
	EDID SETUP	EDID FROM	**NONE**
			OUT1
			OUT2
			DEFAULT
		EDID TO	**NONE**
			HDMI1
			HDMI2
			DP
		EDID COPY	**NO**/YES

| LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
FACTORY	RESET	**NO**/YES	
	UPDATE SYSTEM	USB UPDATE	
INFORMATION	INPUT RES.		
	INPUT HDCP		
	OUTPUT RES.		
	OUTPUT1 HDCP		
	OUTPUT2 HDCP		
	IP ADDRESS		
	VERSION		

Note:

*Values in **Bold** are factory default settings.*

Commands with one asterisk (*) are only available for HDMI and DisplayPort inputs. Commands with two asterisks (**) are only available for PC inputs.

6.5 IR Cable Pin Assignment

IR Blaster

1 **Power**
2 **IR Signal**
3 **NC**

IR Extender

1 **IR Signal**
2 **Power**
3 **Ground**
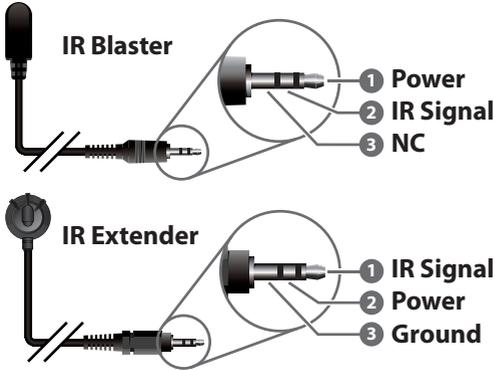
6.6 RS-232 Protocol

UNIT	
Pin	**Assignment**
1	NC
2	TxD
3	RxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

REMOTE CONTROLLER	
Pin	**Assignment**
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 9600bps
Data Bits: 8
Parity: None
Flow Control: None
Stop Bits: 1

6.7 RS-232 and Telnet Commands

COMMAND	DESCRIPTION
?	List all commands.
s factory-reset	Return to factory default settings.
r version	Read FW version.
r source	Read current input source.
s source N	Set input source. N = 0~4 0=HDMI 1 1=HDMI 2 2=DP 3=PC 1 4=PC 2
r lock	Read lock button status.
s lock N	Set lock button status. N = 0, 1 0=Unlock 1=Lock
r output	Read output resolution.
s output N	Set output resolution. N = 0~23 0=640×480 1=800×600 2=1024×768 3=1280×768 4=1360×768 5=1280×720 6=1280×800 7=1280×1024 8=1440×900 9=1400×1050 10=1680×1050

COMMAND	DESCRIPTION
	11=1600×1200
	12=1920×1080
	13=1920×1200
	14=720×480P
	15=1280×720P60
	16=1920×1080I60
	17=1920×1080P60
	18=720×576P
	19=1280×720P50
	20=1920×1080I50
	21=1920×1080P50
	22=NATIVE OUT1
	23=NATIVE OUT2
r size	Read output aspect setting.
s size N	Set output aspect. N = 0~6 1=Full 2=Follow Input 3=Pan Scan 4=Letter Box 5=Under 2 6=Under 1
r hdmi1-hdcp	Read HDCP status for HDMI 1.
s hdmi1-hdcp N	Set HDCP mode for HDMI 1. N = 0, 1 0=Enable 1=Disable
r hdmi2-hdcp	Read HDCP status for HDMI 2.
s hdmi2-hdcp N	Set HDCP mode for HDMI 2. N = 0, 1 0=Enable 1=Disable

COMMAND	DESCRIPTION
r dp-hdcp	Read HDCP status for DisplayPort.
s dp-hdcp N	Set HDCP mode for DisplayPort. N = 0, 1 0=Enable 1=Disable
r contrast	Read contrast setting.
s contrast N	Set contrast. N = 0~60
r brightness	Read brightness setting.
s brightness N	Set brightness. N=0~60
r color-r	Read red colour level.
s color-r N	Set red colour level. N=0~1023
r color-g	Read green colour level.
s color-g N	Set green colour level. N=0~1023
r color-b	Read blue colour level.
s color-b N	Set blue colour level. N=0~1023
r hue	Read hue setting.
s hue N	Set hue. N=0~60
r saturation	Read saturation setting.
s saturation N	Set saturation. N=0~60
r sharpness	Read sharpness setting.
s sharpness N	Set sharpness. N=0~30

COMMAND	DESCRIPTION
r nr	Read noise reduction setting.
s nr N	Set noise reduction level. N = 0~3 0=Off 1=Low 2=Middle 3=High
s pc-auto 1	Activate auto size detection function for the PC source.
s pc-reset 1	Return to the default settings for the PC source.
r pc-h-pos	Read horizontal position of PC source.
s pc-h-pos N	Set horizontal position of the PC source. N=0~60
r pc-v-pos	Read vertical position of PC source.
s pc-v-pos N	Set vertical position of the PC source. N=0~60
r pc-phase	Read PC source phase.
s pc-phase N	Set PC source phase. Values=0~30
r pc-wxga-xga	Read PC WXGA/XGA status.
s pc-wxga-xga N	Set WXGA/XGA preference. N = 0, 1 0=WXGA 1=XGA
r mixer	Read mixer status.
s mixer N	Set Mic mixer state. N = 0, 1 0=Off 1=Mic

COMMAND	DESCRIPTION
r mic-vol	Read microphone volume.
s mic-vol N	Set microphone volume. N = 0~100
r delay	Read audio delay setting.
s delay N	Set audio delay. N = 0~3 0=Off 1=40ms 2=110ms 3=150ms
r mute	Read audio mute status.
s mute N	Set audio mute state. N = 0,1 0=Unmute 1=Mute
r out-vol	Read volume of video output.
s out-vol N	Set volume of video output. N=0~100
r hdmi 1-audio	Read HDMI 1 audio source.
s hdmi-1 audio N	Set HDMI 1 audio source. N=0~2 0=Automatic 1=Analogue 2=Embedded
r hdmi2-audio	Read HDMI 2 audio source.
s hdmi2-audio N	Set HDMI 2 audio source. N=0~2 0=Automatic 1=Analogue 2=Embedded

COMMAND	DESCRIPTION
r dp-audio	Read DisplayPort audio source.
s dp-audio N	Set DisplayPort audio source. N=0~2 0=Automatic 1=Analogue 2=Embedded
r hdmi1-vol	Read HDMI 1 audio volume.
s hdmi1-vol N	Set HDMI 1 volume. N=0~100
r hdmi2-vol	Read HDMI 2 audio volume.
s hdmi2-vol N	Set HDMI 2 volume. N=0~100
r dp-vol	Read DisplayPort audio volume.
s dp-vol N	Set DisplayPort volume. N=0~100
r pc1-vol	Read PC1 audio volume.
s pc1-vol N	Set PC1 volume. N=0~100
r pc2-vol	Read PC2 audio volume.
s pc2-vol N	Set PC2 volume. N=0~100
r osd-h-pos	Read OSD horizontal position.
s osd-h-pos N	Set OSD horizontal position. N=0~100
r osd-v-pos	Read OSD vertical position.
s osd-v-pos N	Set OSD vertical position. N=0~100
r osd-timer	Read OSD automatic off time.

COMMAND	DESCRIPTION
s osd-timer N	Set OSD automatic off time. N=10~100 (seconds)
r osd-trans	Read OSD transparency setting.
s osd-trans N	Set OSD transparency. N=0~100
r osd-display	Read OSD display status.
s osd-display N	Set OSD display mode. N = 0~2 0=Off 1=Info 2=On
r mac-addr	Read MAC address.
r udp	Read UDP port.
s udp N	Set UDP port. N=1~65535
r ip-mode	Read IP mode.
s ip-mode N	Set IP mode. N = 0, 1 0=Static 1=DHCP
r ip-addr	Read the current IP address.
s ip-addr N.N.N.N	Set IP address. N=000~255 *Note: The IP address cannot be manually set when in DHCP mode.*
r sub-net	Read subnet mask.
s sub-net N.N.N.N	Set subnet mask. N=000~255
r gate-way	Read gateway.

COMMAND	DESCRIPTION
s gate-way N.N.N.N	Set gateway. N=000~255
r auto-sync-off	Read Auto Sync Off mode.
s auto-sync-off N	Set Auto Sync Off mode. N = 0~2 0=Off 1=Fast 2=Slow
r auto-input	Read auto input mode.
s auto-input N	Set Auto-Input mode. N = 0, 1 0=Off 1=Scan All
r pc1-comp	Read PC1 Component input state.
s pc1-comp N	Set PC1 component support mode. N = 0, 1 0=RGBHV [PC] 1=YUV [Component Video]
r pc2-comp	Read PC1 Component input state.
s pc2-comp N	Set PC2 component support mode. N = 0, 1 0=RGBHV [PC] 1=YUV [Component Video]
r edid-from	Read which output the EDID is set to be copied from.

COMMAND	DESCRIPTION
s edid-from N	Set the EDID copy source.
	N = 0~3
	0=None
	1=Out1
	2=Out2
	3=Default
r edid-to	Read the input the EDID will be copied to.
s edid-to N	Set the EDID copy destination.
	N = 0~3
	0=None
	1=HDMI1
	2=HDMI2
	3=DP
r edid-copy	Read activity status of the EDID copy.
s edid-copy N	Set Copy EDID mode.
	N = 0, 1
	0=No
	1=Yes

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

6.8 Telnet Control

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

To access Telnet in Windows 7, click on the "Start" menu and type "cmd" in the search field, then press "Enter". Under Windows XP go to the "Start" menu, click on "Run", type "cmd" then press "Enter". Under Mac OS X, go to "Go→Applications→Utilities→Terminal". See below for reference.
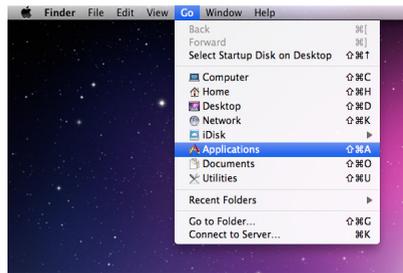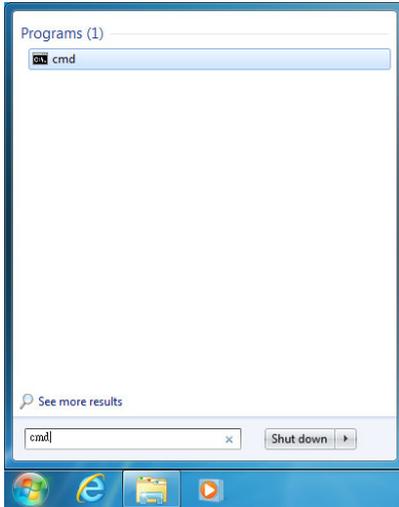
Once in the CLI (Command Line Interface) type "Telnet" followed by the IP address of the unit and "23", then hit "Enter".

This will connect us to the unit we wish to control. Type "help" to list the available commands.

```
?
R VERSION,S FACTORY-RESET,S SOURCE,R SOURCE,S LOCK,R LOCK,S OUTPUT,R OUTPUT,S SI
ZE,R SIZE,S HDMI1-HDCP,R HDMI1-HDCP,S HDMI2-HDCP,R HDMI2-HDCP,S DP-HDCP,R DP-HDC
P,S PC1-COMP,R PC1-COMP,S PC2-COMP,R PC2-COMP,S CONTRAST,R CONTRAST,S BRIGHTNESS
,R BRIGHTNESS,S COLOR-R,R COLOR-R,S COLOR-G,R COLOR-G,S COLOR-B,R COLOR-B,S HUE,
R HUE,S SATURATION,R SATURATION,S SHARPNESS,R SHARPNESS,S NR,R NR,S PC-AUTO,S PC
-H-POS,R PC-H-POS,S PC-V-POS,R PC-V-POS,S PC-PHASE,R PC-PHASE,S PC-CLOCK,R PC-CL
OCK,S PC-WXGA-XGA,R PC-WXGA-XGA,S PC-RESET,S MIXER,R MIXER,S MIC-VOL,R MIC-VOL,S
 DELAY,R DELAY,S MUTE,R MUTE,S OUT-VOL,R OUT-VOL,S HDMI1-AUDIO,R HDMI1-AUDIO,S H
DMI2-AUDIO,R HDMI2-AUDIO,S DP-AUDIO,R DP-AUDIO,S HDMI1-VOL,R HDMI1-VOL,S HDMI2-V
OL,R HDMI2-VOL,S DP-VOL,R DP-VOL,S PC1-VOL,R PC1-VOL,S PC2-VOL,R PC2-VOL,S AUTO-
SYNC-OFF,R AUTO-SYNC-OFF,S AUTO-INPUT,R AUTO-INPUT,S TIMING-SHIFT,R TIMING-SHIFT
,S OSD-H-POS,R OSD-H-POS,S OSD-V-POS,R OSD-V-POS,S OSD-TIMER,R OSD-TIMER,S OSD-T
RANS,R OSD-TRANS,S OSD-DISPLAY,R OSD-DISPLAY,S IP-MODE,R IP-MODE,S NET-IP,R NET-
IP,S IP-ADDR,R IP-ADDR,S NET-GATE,R NET-GATE,S GATE-WAY,R GATE-WAY,S NET-MASK,R
NET-MASK,S SUB-NET,R SUB-NET,S UDP,R UDP,S MAC-ADDR,R MAC-ADDR,S EDID-FROM,R EDID-FROM,S ED
ID-TO,R EDID-TO,S EDID-COPY,R EDID-COPY
```

Note:

Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

If the IP address is changed then the IP address required for Telnet access will also change accordingly.

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6.9 WebGUI Control

Please enter the IP address displayed on the "Ethernet Settings" menu of the OSD into a web browser to connect to the scaler's WebGUI.

The WebGUI is divided up into multiple sections (Input, Lock, Information, Display, Picture, Audio, Miscellany, and Factory) allowing for all functions of the unit to be viewed and controlled directly. 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.
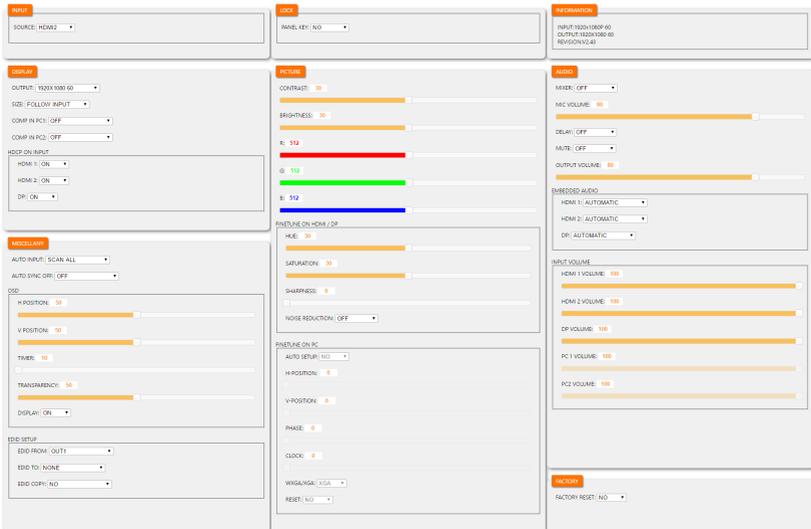
INPUT: This section allows for control of input selection with a choice between HDMI1, HDMI2, DP, PC1, and PC2. Once a selection is made, the switch will occur immediately.

LOCK: This section provides a way to turn the front panel lock on and off.

INFORMATION: This section provides details about the current input and output signals, as well as the firmware version of the unit.

DISPLAY: This section allows for control of the output resolution, size (aspect ratio), and HDCP behavior for all 3 digital inputs on the unit. There are also controls for the signal type expected by each PC input. Enabling "Comp In" for a PC input allows YUV (component video) signals to be used.

PICTURE: This section provides detailed controls for the output's RGB levels, contrast, and brightness for all input types. Additional controls for hue, saturation, sharpness and noise reduction are provided for digital input signals while H/V position, Phase, Clock and WXGA support is provided for the PC inputs.

AUDIO: This section provides controls for the Mic audio mixer as well as embedded audio. The microphone input volume, audio delay and output volume can be directly controlled. The preferred embedded audio source for each digital input may also be selected, and the input volume for each audio source can be set independently.

MISCELLANY: This section provides controls for auto input, auto sync off, OSD settings as well as EDID management. The EDID from one of the 2 outputs can be copied and used with any of the unit's digital inputs.

FACTORY: This section provides a way to perform a factory reset on the unit.

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7. CONNECTION DIAGRAM

Trigger Control
Keypad
Microphone Input
RS-232
RS-232 Equipped PC/Laptop
CD Player
Analog Stereo Input
RS-232 Control System
Set-top Box
RS-232
LAN
DVD/Blu-ray Player
HDMI Inputs
Power Supply
Internet Enabled Router
DisplayPort Input
RS-232
RX
Cat.5e/6/7 Cable
PC
VGA & Analog Stereo Inputs
HDMI Output
Laptop
IR In **IR Out**
Digital Signage
Laptop
Analog Stereo Output
HDMI Output
IR In **IR Out**
REMOTE ZONE
Powered Speakers
HDTV

8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	340MHz/10.2Gbps
Input Ports	2×HDMI 1×DisplayPort 2×VGA (15-pin D-sub) 1×Microphone Audio (6.35mm) 3×Stereo Audio (3.5mm) 1×IR Extender (3.5mm)
Output Ports	1×HDMI 1×Cat.5e/6/7 1×Stereo Audio (3.5mm) 1×IR Blaster (3.5mm) 1×RS-232 (3.5mm)
Control Interfaces	1×IP Control (RJ45) 1×RS-232 (9-pin D-sub) 1×Relay (6-pin Terminal Block)
Supported Resolutions	480i@60Hz - 1080p@60Hz (12-bit) VGA@60Hz - WUXGA@60Hz (RB)
CAT5e/6 Cable Length	60m (1080p@60Hz, 12-bit)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 9600bps
Power Supply	24V/1.25A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±12kV (Air Discharge) ±8kV (Contact Discharge)

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Dimensions	219mm×43mm×156mm (W×H×D) [Case Only] 219mm×51mm×164.3mm (W×H×D) [All Inclusive]
Weight	1,256g
Chassis Material	Metal
Silkscreen Colour	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	16W/22W (with PoC Receiver connected)

8.2 Video Specifications

Supported PC Resolutions (Hz)	Input	Output
640×480@60	✓	✓
640×480@72	✓	
640×480@75	✓	
640×480@85	✓	
800×600@56	✓	
800×600@60	✓	✓
800×600@72	✓	
800×600@75	✓	
800×600@85	✓	
1024×768@60	✓	✓
1024×768@70	✓	
1024×768@75	✓	
1280×720@60		✓
1280×768@60		✓

Supported PC Resolutions (Hz)	Input	Output
1280×800@60	✓	✓
1280×1024@60	✓	✓
1360×768@60		✓
1366×768@60	✓	
1400×1050@60	✓	✓
1440×900@60	✓	✓
1600×900@60	✓	
1600×1200@60	✓	✓
1680×1050@60	✓	✓
1920×1080@60		✓
1920×1200@60 (RB)	✓	✓

Supported TV Resolutions (Hz)	Input	Output
720×576i@50	✓	
720×480i@59.94	✓	
720×480i@60	✓	
720×480p@59.94	✓	
720×480p@60	✓	✓
720×576p@50	✓	✓
1280×720p@50	✓	✓
1280×720p@59.94	✓	
1280×720p@60	✓	✓
1920×1080i@50	✓	✓
1920×1080i@59.94	✓	
1920×1080i@60	✓	✓
1920×1080p@50	✓	✓

Supported TV Resolutions (Hz)	Input	Output
1920×1080p@59.94	✓	
1920×1080p@60	✓	✓
1920×1080p@23.97	✓	
1920×1080p@24	✓	
1920×1080p@25	✓	
1920×1080p@29.97	✓	
1920×1080p@30	✓	

8.3 HDBaseT Specifications

Features	Transmitter
Audio/Video	✓
Control (IR & RS-232)	✓
Power to compatible RX unit	✓
Power from compatible TX unit	
LAN	✓

9. ACRONYMS

ACRONYM	COMPLETE TERM
Cat.5e	Category 5 (enhanced) Cable
Cat.6	Category 6 Cable
Cat.7	Category 7 Cable
CLI	Command Line Interface
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
HTTP	HyperText Transfer Protocol
IP	Internet Protocol
IR	Infrared
LPCM	Linear Pulse-Code Modulation
OSD	On-Screen Display
PC	Personal Computer
PCM	Pulse-Code Modulation
PoC	Power over Cable
UHD	Ultra-High-Definition
USB	Universal Serial Bus
VGA	Video Graphics Array (640×480@60Hz)
WUXGA	Wide Ultra Extended Graphics Array (1920×1200@60Hz)