

**HDBaseT PC/CV to HDMI Scaler Format  
Converter over CAT5e/6/7 Transmitter  
(with 5 Play Convergence) - ID# 15224**



**Operation Manual**

## Introduction

The HDBaseT PC/CV to HDMI Scaler Format Converter over CAT5e/6/7 Transmitter (with 5 Play Convergence) is an HDBaseT™ Transmitter Scaler supporting PC or Composite Video (CV) input. It can scale and switch the video sources, and send the digitalized signal over a single run of CAT5e/6/7 cable to the Receiver at a distance up to 100 meters, along with an external audio input, 2-way IR, RS-232 and bidirectional LAN serving. Control is via on-panel buttons or IR remote control and there is an On-screen Display (OSD) providing selection and system information. The device provides a full range of output resolutions, up to 1080p and WUXGA (RB). The bidirectional Power over Ethernet (PoE) function provides greater flexibility in installations

## Features

- Supports PC/CV scaling to a full range of HDTV or PC resolutions up to 1080p and WUXGA (RB)
- Transmission of uncompressed data over a single CAT5e/6/7 cable up to 100m/328ft
- 5Play™ convergence: Video and Audio, LAN serving, bidirectional Power over Ethernet (PoE) and Control (IR/RS-232 bypass)
- Supports IR, Remote control, RS-232 (bypass) and on-panel controls
- Provides bidirectional 24V DC power to or receive from compatible PoE Receiver through CAT5e/6/7 cable
- Supports Ethernet transmission rates up to 100 Mbps
- Supports NTSC and PAL formats for Composite Video input

### Note:

1. This system was tested with CAT6/23AWG cables, results may vary with cables of different specifications.
2. The PoE function is designed for powering compatible Receiver units only—non-PoE Receivers will need their own power supply. Receivers from other brands may not be compatible.
3. DO NOT connect the LAN connection to the CAT5e/6/7 port. Doing so may cause a power shutdown and may damage the device.

## Applications

- Analog to Digital video signal conversion
- Up scale standard definition video to High-Definition TVs/displays
- Extend the operating distance of a CV/PC video signal
- Lecture room/Showroom/Meeting room/Classroom display and control

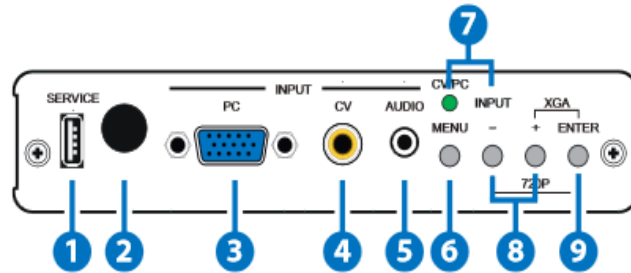
## System Requirements

CV/PC source equipment such as a DVD/Video player or PC/Laptop and output to HDBaseT compatible Receiver



## Operation Controls and Functions

### Front Panel



#### 1. SERVICE:

Reserved for manufacturer use only.

#### 2. IR RECEIVER WINDOW:

Receives only the IR signal from the supplied remote control for this device only.

#### 3. PC:

Connect to a PC/Laptop source device with a D-Sub 15pin cable.

#### 4. CV:

Connect to a composite video source such as a DVD/Video player.

#### 5. AUDIO:

Connect to an analog stereo (L/R) audio source with a 3.5mm mini-jack cable.

#### 6. MENU:

Press this button to enter the On-Screen Display (OSD) menu.

#### 7. INPUT (-) Button & CV/PC LED:

Press the INPUT (-) button to toggle between CV or PC inputs. When in CV mode the LED will be lit, off when in PC mode.

#### 8. -/+:

Use these buttons to navigate down and up in the on-screen menu.

#### 9. ENTER:

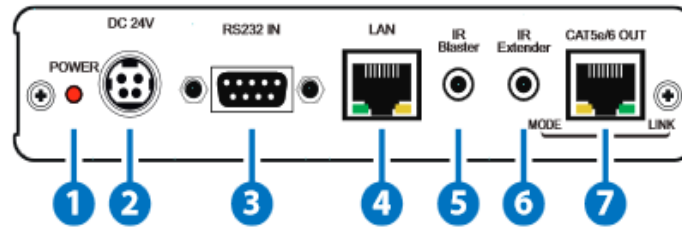
Press this button to confirm the selection.

#### Note:

Pressing '-' (MINUS) and ENTER simultaneously will immediately switch the output resolution of the device to 720p60.

Pressing '+' (PLUS) and ENTER simultaneously will immediately switch the output resolution of the device to XGA (1024×768)

## Back Panel



### 1. POWER LED:

This LED will illuminate when the device is connected to an active power supply.

### 2. DC 24V:

Connect the 24V DC power supply to the unit and plug the adaptor into an AC outlet. Only one unit requires powering if both the Transmitter and Receiver are both PoE compatible.

### 3. RS-232 IN:

Connect to a PC or RS-232 control system with a D-Sub 9 pin male cable for the transmission of RS-232 commands.

### 4. LAN:

Connect to an active network for LAN serving. When any compatible LAN equipped receivers are connected, this allows the network access (including internet access if available) to be shared between any connected LAN equipped receivers. Connect any Ethernet equipped device e.g. a Smart TV or games console to the LAN port of a receiver for that device to share the network/internet access.

**Warning:** DO NOT connect the LAN connection to the CAT5e/6/7 port. Doing so may cause a power shutdown and may damage the device.

### 5. IR Blaster:

Connect the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

### 6. IR Extender:

Connect the supplied IR Receiver cables for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

### 7. CAT5e/6/7 OUT:

Connect to the Receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.

### MODE LED:

This LED will illuminate when the power is connected.

### LINK LED:

This LED will illuminate when connected to a Receiver unit that is connected with a TV/monitor that is displaying the signal

## Remote Control

### 1. INPUT:

Press this button to toggle between the CV or PC input.

### 2. EXIT:

Press this button to exit the menu or the current selection in the on-screen menu.

### 3. MENU:

Press this button to enter into the OSD menu.

### 4. RESET:

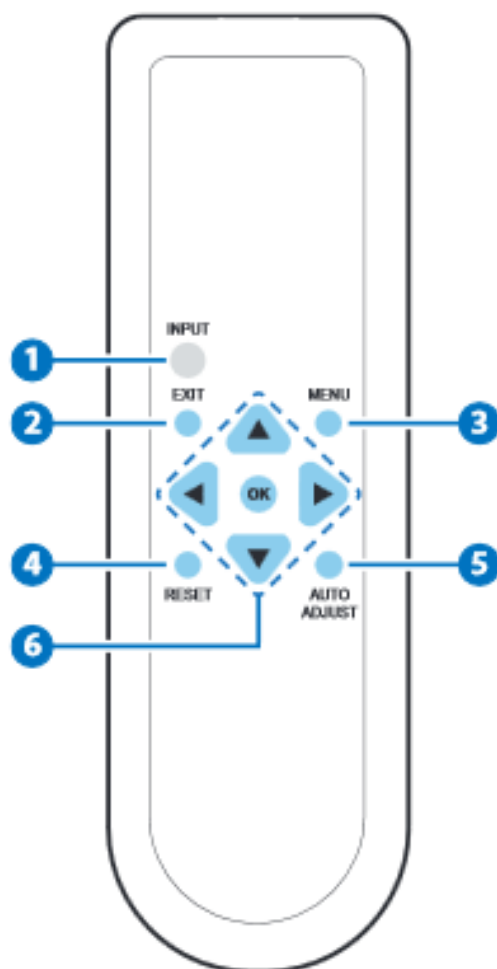
Press this button to return the device to the factory default settings.

### 5. AUTO ADJUST:

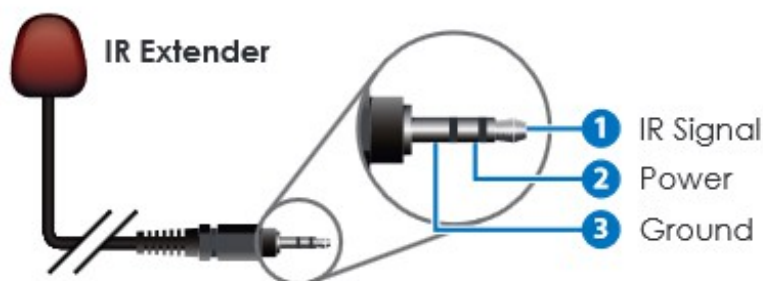
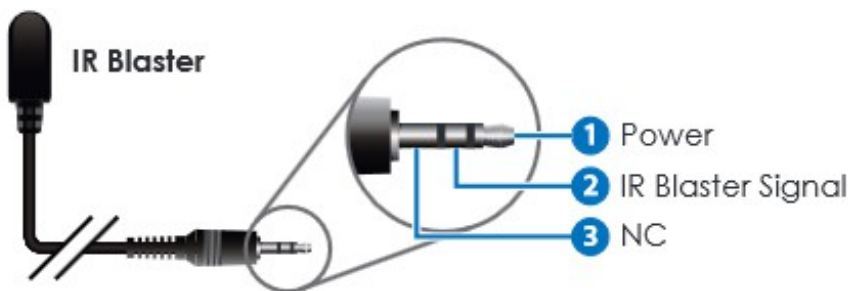
Press this button to optimize the positioning of the picture (picture centering) on the screen.

### 6. OK & ▲▼◀▶:

Press 'OK' to confirm the selection or use the directional buttons to navigate the on-screen menus.



## IR Cable Pin Assignment



## RS-232 Protocols

PIN	DEFINITION		PIN	DEFINITION
1	N/C	←	1	N/C
2	TxD		2	RxD
3	RxD		3	TxD
4	N/C		4	N/C
5	GND		5	GND
6	N/C		6	N/C
7	N/C		7	N/C
8	N/C		8	N/C
9	N/C		9	N/C

Baud Rate: 9600bps

Data Bit: 8 bits

Parity: None

Flow Control: None

Stop Bit: 1

## RS-232 & Telnet Commands

Command	Description
S SOURCE 1~2	1=VIDEO 2=PC
R SOURCE	Reports the numerical equivalent for the SOURCE setting (as listed above)
S OUTPUT 0~25	0=Native 1=640×480 2=800×600 3=1024×768 5=1360×768 6=1280×720 7=1280×800 8=1280×1024 9=1440×900 10=1400×1050 11=1680×1050 12=1600×1200 13=1920×1080 16=1920×1200 17=480p 18=720p@60 19=1080p@60 20=1080i@60 22=576p 23=720p@50 24=1080p@50 25=1080i@50
R OUTPUT	Reports the numerical equivalent for the OUTPUT setting (as listed above)
S SIZE 0~6	0=OVERSCAN 1=FULL 2=BEST FIT 4=LETTER BOX 5=UNDER 2 6=UNDER 1

R SIZE	3=PAN SCAN Reports the numerical equivalent for the SIZE setting (as listed above)
S CONTRAST 0~60 R CONTRAST	Sets the numerical value for the CONTRAST setting (0~60) Reports the numerical value for the CONTRAST setting (0~60)
S BRIGHTNESS 0~60 R BRIGHTNESS	Sets the numerical value for the BRIGHTNESS setting (0~60) Reports the numerical value for the BRIGHTNESS setting (0~60)
S HUE 0~60 R HUE	Sets the numerical value for the HUE setting ((0~60) Reports the numerical value for the HUE setting (0~60)
S SATURATION 0~60 R SATURATION	Sets the numerical value for the SATURATION setting (0~60) Reports the numerical value for the SATURATION setting (0~60)
S SHARPNESS 0~30 R SHARPNESS	Sets the numerical value for SHARPNESS setting (0~30) Reports the numerical value for the SHARPNESS setting (0~30)
S NR 0~3 R NR	0=OFF                      2=MIDDLE 1=LOW                     3=HIGH Reports the numerical equivalent for the NOISE REDUCTION setting (as listed above)
S AUDIO DELAY 0~3 R AUDIO DELAY	0=OFF                      2=110ms 1=40ms                    3=150ms Reports the numerical equivalent for the AUDIO DELAY setting (as listed above)
S AUDIO MUTE 0/1 R AUDIO MUTE	0=ON                      1=MUTE Reports the numerical equivalent for the AUDIO MUTE setting (as above)
S KEY LOCK 0/1 R KEY LOCK	0=ENABLE                1=DISABLE Reports the numeric equivalent for the KEY LOCK setting (as listed above)
FW	Checks the FIRMWARE version
S RESET 1	Sets the numerical equivalent for the RESET setting (as left)

**Note:**

1. RS-232 commands will not execute unless followed by a carriage return and LF (Line Feed).
2. Commands are not case-sensitive.
3. Resolutions 1~16 are RGB encoded and 17~25 are YUV encoded

**OSD Menu**

1 <sup>st</sup> Layer	2 <sup>nd</sup> Layer	3 <sup>rd</sup> Layer	4 <sup>th</sup> Layer			
Display	Output	Native				
		640x480 60				
		800x600 60				
		1024x768 60				
		1360x768 60				
		1280x720 60				
		1280x800 60				
		1280x1024 60				
		1440x900 60				
		1400x1050 60				
		1680x1050 60				
		1600x1200 60				
		1920x1080 60				
		1920x1200 60				
		720x480P 60				
		<b>1280x720P 60</b>				
		1920x1080I 60				
		1920x1080P 60				
		720x576P 50				
		1280x720P 50				
		1920x1080I 50				
		1920x1080P 50				
		Size		Size	Overscan	
					<b>Full</b>	
					Aspect Ratio	
Pan Scan						
Letter Box						



		Under1		
		Under 2		
		<b>Mode Info</b>		
		<b>Info</b>		
		On		
		Off		
	PC (PC mode only)	Auto Setup		No
				Yes
		H Position		0~60 (30)
		V Position		0~60 (30)
		Phase		
		Clock		
		WXGA/XGA		<b>XGA</b>
				WXGA
		Reset		No
Yes				
Colour	Colour	R		
		G		
		B		
		R Offset		
		G Offset		
		B Offset		
	Contrast	0~60		
	Brightness	0~60		
	Hue	0~600~60		
	Saturation	0~60		
	Sharpness	0~60		
		<b>NR.</b>		
		Low		
		Middle		
		High		
Audio	Volume	0~100		
	Delay	<b>Off</b>		
		40ms		

		110ms		
		150ms		
		Sound		<b>On</b>
		Mute		
Setup	Factory Reset	<b>No</b>		
		Yes		
	Key Lock	<b>Off</b>		
		On		
Information	Input			
	Output			
	Revision			

Note: Items in **Bold** are the default settings

## Input Resolutions Support

Input Resolution	CV	PC
NTSC/PAL	√	-
VGA@60/72/75 Hz	-	√
SVGA@56/60/72/75 Hz	-	√
XGA@60/70/75 Hz	-	√
SXGA@60/75 Hz	-	√
UXGA@60 Hz	-	√
1280×800@60 Hz	-	√
1680×1050@60 Hz (RB)	-	√
1920×1080@60 Hz	-	√

## Specifications

<b>Ethernet Speed</b>	100 Mbps
<b>Output Video Bandwidth</b>	300MHz / 10.2Gbps
<b>Input Ports</b>	1×Composite Video, 1×VGA, 1×3.5mm Mini-jack (L/R), 1×RS-232, 1×LAN, 1×IR Extender
<b>Output Ports</b>	1×CAT5e/6/7, 1×IR Blaster
<b>CAT5e/6/7 Out Cable Distance</b>	Up to 100 Meters
<b>CV Resolutions Support</b>	NTSC/PAL
<b>VGA Resolutions Support</b>	VGA~WUXGA (RB)
<b>CAT5e/6/7 Resolutions Support</b>	HD: Up to 1080p@60 Hz PC: Up to WUXGA (RB)
<b>IR Frequency</b>	30~50 kHz
<b>ESD Protection</b>	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Dimensions</b>	145 mm (W)×192 mm (D)×30 mm (H)/ Jacks Excluded 145 mm (W)×202 mm (D)×30 mm (H)/ Jacks Included
<b>Weight</b>	606 g
<b>Chassis Material</b>	Aluminum
<b>Color</b>	Black
<b>Operating Temperature</b>	0°C~40°C / 32°F~104°F
<b>Storage Temperature</b>	-20°C ~ 60°C / -4°F ~ 140°F
<b>Relative Humidity</b>	20 ~ 90 % RH (non-condensing)
<b>Power Consumption</b>	16W

## CAT5e/6/7 Cable Specification

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video
CAT5e/6/7	100 m	≤225 MHz	≤5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).

# Connection Diagram

