



CDPS-US100R

HDMI/HDBaseT to Dual HDMI 4K UHD Scaler



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 (DD/MM/YY)	SUMMARY OF CHANGE
VR0	28/01/16	Preliminary release
VS1	28/03/17	Updated text/diagrams



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1. INTRODUCTION

This HDMI/HDBaseT to Dual HDMI 4K UHD Scaler is designed to extend and scale HDMI signals for simultaneous output to two HDMI displays while also extracting balanced analog audio. It supports 4K@30Hz video, 3D, 36-bit Deep Color, and HD lossless audio as well as other features defined by the latest HDMI specification. The HDBaseT input support allows for uncompressed video and audio, as well as bi-directional IR control and LAN extension via a single Cat.5e/6/7 cable at up to 100m. The management of source/sink scenarios can be controlled easily through the front panel with OSD, IR remote control, RS-232, Telnet, or WebGUI. The Power over Cable (PoC) function can power compatible 24V Transmitters, providing greater flexibility in installations.

2. APPLICATIONS

- Distributing incoming HDBaseT signals to two HDMI outputs
- Up-scale low resolution sources for output to HD or UHD displays
- Down-scale HD signals for display on lower resolution monitors
- Lecture room/showroom/meeting room/classroom display and control
- Public commercial display extension

3. PACKAGE CONTENTS

- 1×HDMI/HDBaseT to Dual HDMI 4K UHD Scaler
- 1×Remote Control (CR-150)
- 1×IR Blaster Cable
- 1×IR Extender Cable
- 2×5-pin Terminal Blocks
- 1×24V/1.25A Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

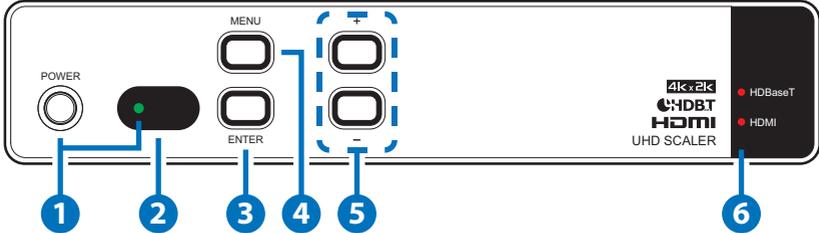
- HDMI source equipment such as media players, video game consoles or set-top boxes and/or a compatible HDBaseT Transmitter with 24V PoC support.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- The use of industry standard Cat.6, Cat.6a or Cat.7 cable is highly recommended.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI with 3D and 4K UHD support
- Supports HDCP 1.4 for all HDMI inputs and outputs
- Supports resolutions up to 4K UHD: 3840×2160@24/25/30Hz & 4096×2160@24Hz
- Supports HDMI data rates up to 10.2Gbps and "Deep Color" up to 1080p w/ 36-bit color
- Supports scaling low resolution sources up to 4K UHD output resolutions
- Supports scaling 4K UHD resolution sources to HD or lower output resolutions
- Supports mirrored output to two connected HDMI displays
- Receives extended HDMI, IR, and Ethernet signals across up to 100m Cat.5e/6/7 cable
- Provides power to compatible HDBaseT Transmitters using 24V PoC (Power over Cable)
- Supports balanced analog stereo output (from LPCM 2.0 sources only)
- Supports Ethernet transmission rates up to 100Mbps
- Supports control via front panel with OSD, WebGUI, Telnet, RS-232, and IR remote

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel

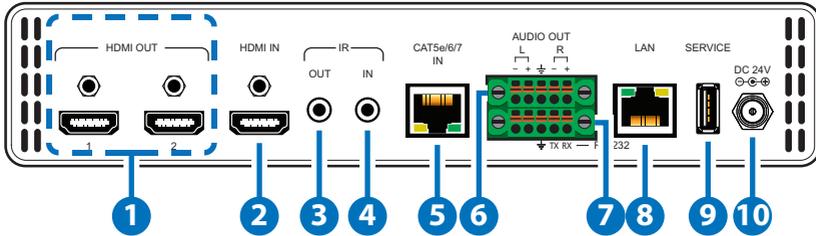


- 1 **POWER & LED:** Press this button to power the unit on or place it into stand-by mode. The LED will be lit when the unit is on and receiving power. This unit will remember its last power state when unplugged.
- 2 **IR WINDOW:** Accepts IR signals from the included IR remote for control of this unit only.
- 3 **ENTER:** Press to begin changing a setting within the OSD. Press a second time to confirm the change made to the settings.
- 4 **MENU:** Press to open or close the OSD menu.
- 5 **-/+ (MINUS/PLUS):** Press to move up and down or adjust selections within OSD menu.

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 **LEDs:** The illuminated LED indicates which source is currently selected.

6.2 Rear Panel



- 1 **HDMI OUT 1~2:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.
- 2 **HDMI IN:** Connect to HDMI source equipment such as a media player, game console or set-top box.
- 3 **IR OUT:** Connect to the provided IR Blaster to transmit IR signals to devices within direct line-of-sight of the IR Blaster.
- 4 **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.

Note: Both IR IN and IR OUT are only to facilitate sending the signal over HDBaseT to/from connected compatible Transmitters. Those signals will not be used to control this product.

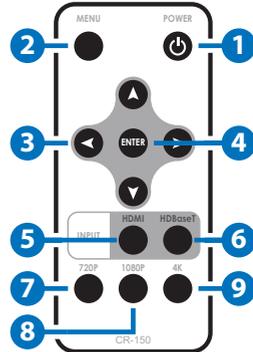
- 5 **CAT5e/6/7 IN:** Connect to a compatible 24V PoC supporting HDBaseT Transmitter with a single Cat.5e/6/7 cable for transmission of all data signals.

Note: This system was tested with 23 AWG Cat.6 cable. Results may vary with cable of a different specification.

- 6 **AUDIO OUT:** Connect to powered speakers or an amplifier for balanced stereo analog audio output.
- 7 **RS-232:** Connect directly to a PC, laptop or other serial control device to send RS-232 commands to control the unit.
- 8 **LAN:** Connect directly, or through a network switch, to your PC/ laptop to control the unit via Telnet/WebGUI and to extend the network across the HDBaseT connection.
- 9 **SERVICE:** This port is reserved for manufacturer use only.
- 10 **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 **POWER:** Press to power on the unit or place it into stand-by mode.
- 2 **MENU:** Press to open or close the OSD menu.
- 3 **▲/▼/◀/▶:** Within the menu use the UP/DOWN keys to move vertically, and use LEFT/RIGHT to change the settings of a selected menu item.
- 4 **ENTER:** Press to begin changing a setting within the OSD. Press a second time to confirm the change made to the settings.
- 5 **HDMI:** Press to switch to the HDMI input.
- 6 **HDBaseT:** Press to switch to the HDBaseT input.
- 7 **720P:** Press to change the output resolution to 720p@60Hz.
- 8 **1080P:** Press to change the output resolution to 1080p@60Hz.
- 9 **4K:** Press to change the output resolution to 4K@24Hz.



6.4 OSD Menu

LEVEL 1	LEVEL 2	LEVEL 3
Input Source	HDMI	
	HDBaseT	
Output Format	HD	Pass_through
		480i@60
		480p@60
		576i@50
		576p@50
		720p@50
		720p@60
		1080i@50
1080i@60		

LEVEL 1	LEVEL 2	LEVEL 3
Output Format (cont.)	HD	1080p@50
		1080p@60
		1080p@24
	4K2K	2048×1080p@24
		2048×2080p@50
		2048×1080p@60
		2048×1152p@60
		3840×2160p@24
		3840×2160p@25
		3840×2160p@30
		4096×2160@24
	PC-1	640×480@60
		640×480@72
		640×480@75
		800×600@60
		800×600@72
		800×600@75
		1024×768@60
		1024×768@72
		1024×768@75
	PC-2	1280×768@60
		1280×800@60
		1280×960@60
		1280×1024@60
		1360×768@60
		1366×768@60
		1400×1050@60
		1440×900@60
		1600×900@60
	1600×1200@60	



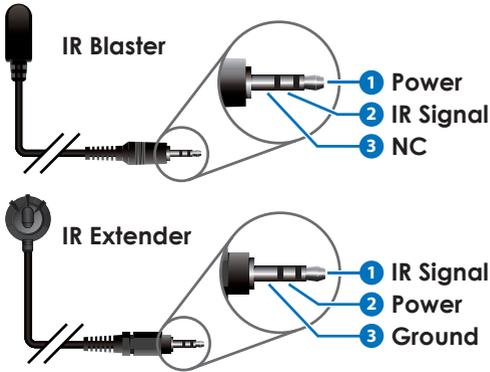
LEVEL 1	LEVEL 2	LEVEL 3
Output Format (cont.)	PC-2	1920×1200@60
	Native	
OSD Menu Timer	10 sec	
	30 sec	
	60 sec	
OSD Info Banner	On	
	Off	
Aspect Ratio	4:3	
	16:9	
	Follow	
DHCP	On	
	Off	
Network Status	IP Status	STATIC
		DHCP
	MAC Address	
	IP Address	0~255 (192.168.1.50)
	Subnet Mask	0~255 (255.255.255.0)
	Gateway	0~255 (192.168.1.254)
System Info	Input Resolution	
	Output Resolution	
	Input Format	
	Input HDCP Status	
	Input Audio Sample Rate	
	Video Color Space	
	Software Revision	
	OSD Revision	
Factory Default		

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

OSD Menu Descriptions:

- **Input Source:** Input source signal selection.
- **Output Format:** Set output resolution.
- **OSD Menu Time:** Idle time before the OSD menu turns off.
- **OSD Info Banner:** OSD info banner display.
- **Aspect Ratio:** Adjust the output aspect ratio.
- **DHCP:** Turn support DHCP on and off.
- **Network Status:**
 - *IP Status:* Show the current IP mode (Static/DHCP).
 - *MAC Address:* Show the unit's MAC address.
 - *IP Address:* Show the current IP address.
 - *Subnet Mask:* Show the subnet mask.
 - *Gateway:* Show the gateway.
- **System Info:**
 - *Input Resolution:* Show input resolution.
 - *Output Resolution:* Show output resolution.
 - *Input Format:* Show input source format.
 - *Input HDCP Status:* Detect input HDCP status.
 - *Input Audio Sample Rate:* Show input audio sample rate.
 - *Video Color Space:* Show video color space status.
 - *Software Revision:* Show software version.
 - *OSD Revision:* Show OSD version.
- **Factory Default:** When this item is selected and "Enter" is pressed the OSD submenu will show "ON". Press "Enter" again to confirm your selection and reset the unit to factory defaults.

6.5 IR Cable Pin Assignment



6.6 RS-232 Protocol

UNIT	
Pin	Assignment
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC



REMOTE CONTROLLER	
Pin	Assignment
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 115200bps
 Data Bits: 8
 Parity: None
 Flow Control: None
 Stop Bits: 1

6.7 RS-232 and Telnet Commands

COMMAND	DESCRIPTION
help	Display all available commands.
?	Display all available commands.
help N	Display command description. N={Command Name}
PWON	Power on.
PWOFF	Power off.
PWSTA	Display power status.
VFmtRes	Display format status.
VFmtRes N	Set output video format to any resolution (480i~4K). N=0~39 0=Pass-through 1=640×480p@60 2=720×480i@60 3=720×480p@60 4=1280×720p@60 5=1920×1080i@60 6=1920×1080p@60 7=720×576i@50 8=720×576p@50 9=1280×720p@50 10=1920×1080i@50 11=1920×1080p@50 12=1920×1080p@24 13=1920×1080p@25 14=1920×1080p@30 15=640×480p@72 16=640×480p@75 17=800×600p@60 18=800×600p@72 19=800×600p@75

COMMAND	DESCRIPTION
	20=640×480p@60 21=1024×768p@72 22=1024×768p@75 23=1280×768p@60 24=1280×800p@60 25=1280×960p@60 26=1280×1024p@60 27=1360×768p@60 28=1366×768p@60 29=1440×900p@60 30=1600×1200p@60 31=1920×1200p@60 32=2048×1080p@24 33=2048×1080p@50 34=2048×1080p@60 35=2048×1152p@60 36=3840×2160p@24 37=3840×2160p@25 38=3840×2160p@30 39=4096×2160p@24
Input N	Set input source to HDMI or HDBaseT. N= HDMI, HDBT
IPCFG	Display IP address configuration.
IPDHCP N	Turn DHCP mode on/off and get status. N=on, off, sta
IPStatic N N1 N2	Set static IP address, Netmask, and Gateway. N=XXX.XXX.XXX.XXX [IP address] N1=XXX.XXX.XXX.XXX [Netmask] N2=XXX.XXX.XXX.XXX [Gateway] XXX=000~255
IPQuit	Telnet logout.

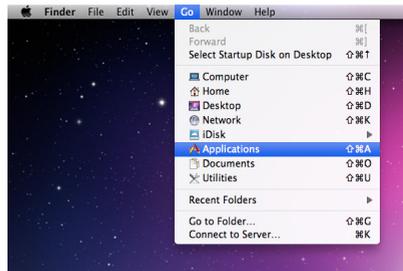
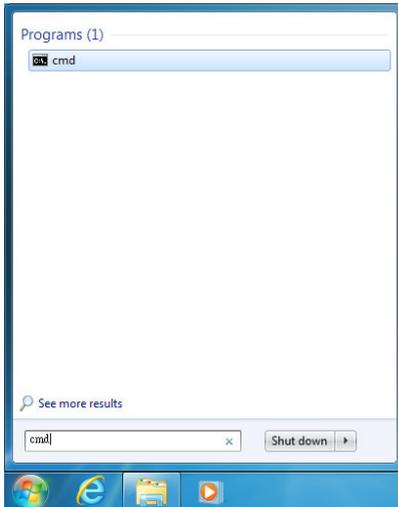
COMMAND	DESCRIPTION
IPAddUser N N1	Add Telnet user. N=0~9, a~z or A~Z (Up to 20 character) [User name] N1=0~9, a~z or A~Z (Up to 20 character) [Password]
IPDelUser N	Delete Telnet user. N={User name}
IPPort N	Set Telnet port. N=1~65535
IPLogin N	Set Telnet login requirement and check status. N=on, off, sta
IPTimeout N	Set Telnet idle timeout. N=1~60000 [Seconds]
Aspect N	Set Aspect function. N=16:9, 4:3, follow
Factory	Reset the unit to factory default settings.

Note: Commands will not be executed unless followed by a carriage return. Commands are 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”.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>telnet 192.168.5.80 23
```

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

```
?
help
PWON
PWOFF
PWSTA
UFmtRes
Input
Aspect
IPCFG
IPDHCP
IPStatic
IPQuit
IPAddUser
IPDelUser
IPPort
IPLogin
Broadcast
IPTimeout
Factory
"help Command" can display description of command.
```

Note:

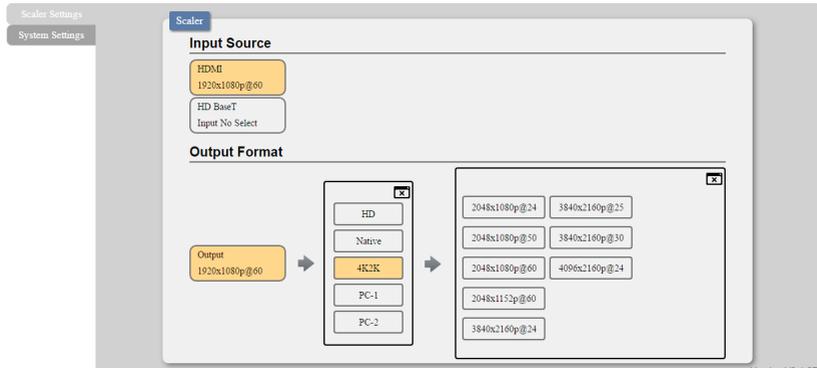
- *Commands will not be executed unless followed by a carriage return. Commands are case-sensitive.*
- *If the IP address is changed then the IP address required for Telnet access will also change accordingly.*

6.9 WebGUI Control

Open a web browser on a PC/laptop which is connected to the same LAN as the scaler and type device's IP address (visible within the OSD menu) into the web address entry bar. The browser will display the WebGUI, providing access to the device's scaler and system settings.

6.9.1 Scaler Settings

Click on "Scaler Settings" to change input sources or output format.

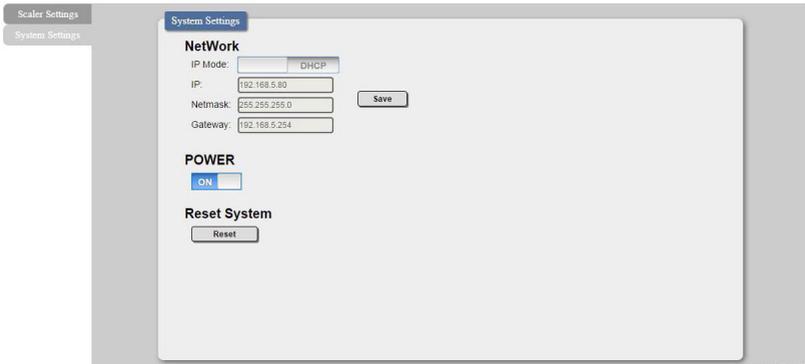


- **Input Source:** Click on the preferred source to route to the dual HDMI outputs. The currently detected input resolution will be displayed within the button.
- **Output Format:** To change output resolutions click on the "Output" button, then select from the available resolution categories (HD, Native, 4K2K, PC-1, PC-2) and then select the resolution you wish to output.

Note: When the input source is 4K and the output is a 4K resolution, the unit will automatically switch to a "Bypass" mode. Frame rate conversion in 4K is not supported.

6.9.2 System Settings

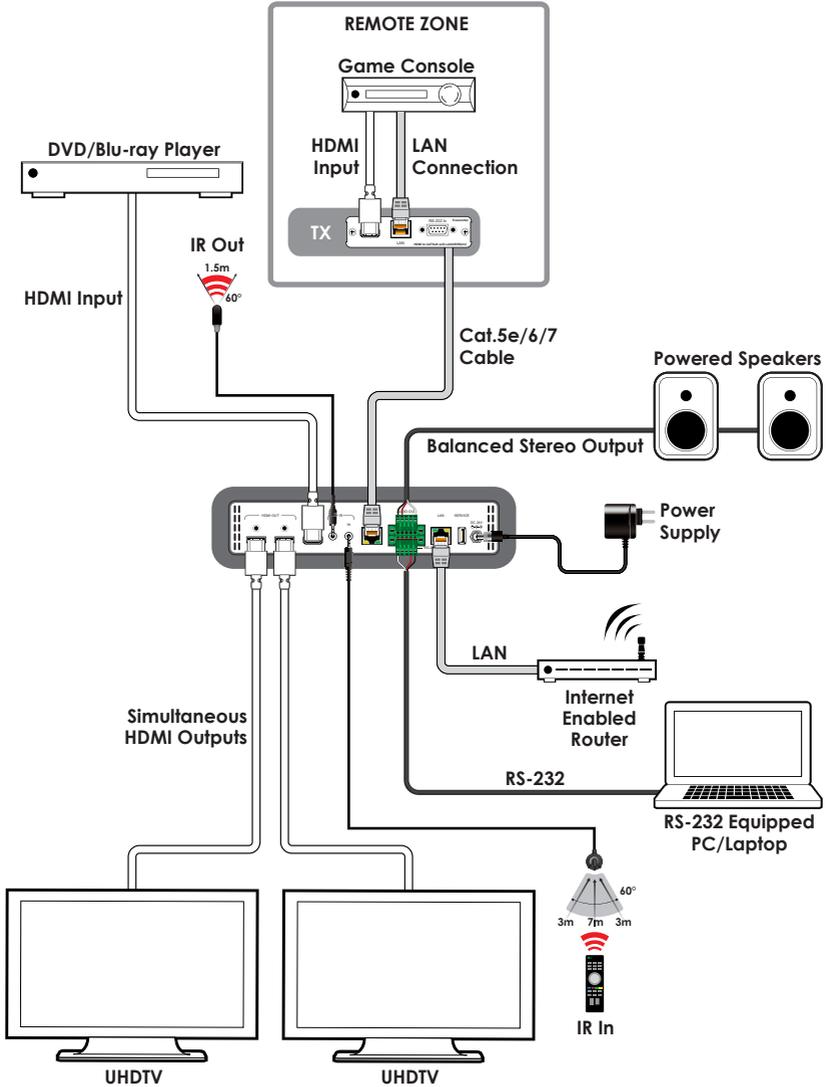
Click on "System Settings" to change network settings, power the unit on/off or perform a factory reset.



The screenshot shows a web interface for system settings. On the left, there is a sidebar with two tabs: "Scaler Settings" and "System Settings". The "System Settings" tab is active. The main content area is titled "System Settings" and contains three sections:

- NetWork**: This section includes four input fields: "IP Mode" (with a dropdown menu currently showing "DHCP"), "IP:" (containing "192.168.5.80"), "Netmask:" (containing "255.255.255.0"), and "Gateway:" (containing "192.168.5.254"). A "Save" button is located to the right of these fields.
- POWER**: This section features a blue "ON" button next to a small square indicator.
- Reset System**: This section contains a "Reset" button.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	340MHz/10.2Gbps
Input Ports	1×HDMI 1×Cat.5e/6/7 1×IR Extender (3.5mm)
Output Ports	2×HDMI 1×Balanced Stereo Audio (5-pin Terminal Block) 1×IR Blaster (3.5mm)
Control Interfaces	1×IP Control (RJ45) 1×RS-232 (5-pin Terminal Block)
Supported Resolutions	480i@60Hz - 4K@24/25/30Hz VGA@60Hz - WUXGA@60Hz (RB)
HDMI Cable Length	10m (1080p@60Hz, 12-bit) 5m (4K@24/25/30Hz, 8-bit)
CAT5e/6 Cable Length	100m (1080p@60Hz, 12-bit) 70m (4K@24/25/30Hz, 8-bit)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	24V/1.25A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±12kV (Air Discharge) ±8kV (Contact Discharge)
Dimensions	219mm×43mm×156mm (W×H×D) [Case Only] 219mm×51mm×164.3mm (W×H×D) [All Inclusive]



Weight	1,136g
Chassis Material	Metal
Silkscreen 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	15W/25W (with PoC Transmitter connected)

8.2 Video Specifications

Supported PC Resolutions (Hz)	Input	Output
640×480@60/72/75	✓	✓
800×600@60/72/75	✓	✓
1024×768@60/72/75	✓	✓
1280×768@60	✓	✓
1280×800@60	✓	✓
1280×960@60	✓	✓
1280×1024@60	✓	✓
1360×768@60	✓	✓
1366×768@60	✓	✓
1440×1050@60	✓	✓
1440×900@60	✓	✓
1600×900@60	✓	✓
1600×1200@60	✓	✓
1920×1200@60	✓	✓

Supported TV Resolutions (Hz)	Input	Output
720×480i@60	✓	✓
720×480p@60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
1280×720p@50/60	✓	✓
1920×1080i@50/60	✓	✓
1920×1080p@50/60	✓	✓
1920×1080p@24/25/30	✓	✓
2048×1080p@24/50/60	✓	✓
2048×1152p@60	✓	✓
3840×2160p@24/25/30	✓	✓
4096×2160p@24	✓	✓

8.3 HDBaseT Specifications

Features	Receiver
Audio/Video	✓
Control (IR only)	✓
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
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
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)



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