CDPS-US100R

HDMI 4K UHD Scaler

HDBT 4K2K

Operation Manual

DISCLAIMERS

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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	First Release

CONTENTS

1. INTRODUCTION

The HDMI 4K UHD Scaler is designed to extend and upscale HDMI signal on to two HDMI output displays and one analog audio simultaneously. It supports 4K2K, 3D, 36-bit Deep Color, Hi-Def. lossless audio and other features defined by the latest HDMI specifications. Allowing uncompressed video and audio, as well as bi-directional IR control, RS-232 pass-through, also LAN serving from a single CAT5e/6/7 cable over 100m of distance. The management of source/sink scenarios can be operated easily through on-panel buttons, OSD, IR remote control, RS-232 and WebGUI control. The Power over Cable (PoC) function can power compatible receivers, providing greater flexibility in installations.

2. APPLICATIONS

- Extending incoming signal through CAT5e/6/7 to HDMI outputs
- Scale up HDMI input low resolution video on High-Definition display
- Scale down HD signal down monitor
- Lecture room/showroom/Meeting room/Classroom display and control
- Public Commercial Display extension

3. PACKAGE CONTENTS

- 1×HDMI 4K UHD Scaler
- 2×Terminal Block Jacks
- 1×IR Extender Cable
- 1×IR Blaster Cable
- 1×Remote Control with Battery
- 1×24 V/1.25 A DC Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

HDBaseT compatible Transmitter input and PS3/Blu-ray player and output HDMI TV/Display with connection cables.

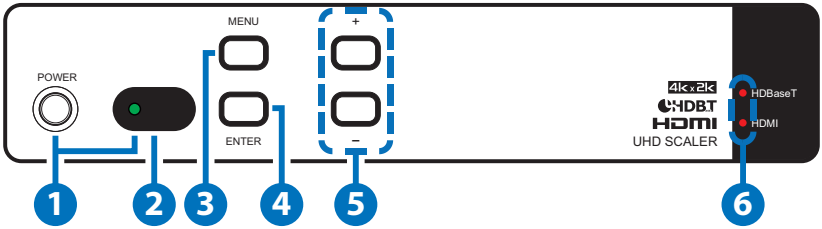
5. FEATURES

- HDMI with 3D pass through supported, and HDCP compliant
- Supports HDTV resolutions up to 4K2K (3840×2160@24/25/30, 3840×2160@50/60 YUV420 & 4096×2160@24/25/30)
- Supports scale down HD resolution on to monitor/display
- Supports data rate from 300Mbps to 3Gbps and Deep Color up to 1080p 36-bit
- Supports simultaneous HDMI outputs with different resolution setting
- Extend HDMI, IR, RS-232 signal up to 100m through CAT5e/6/7 cable
- Supports Balanced audio and bi-directional IR control
- Supports Ethernet transmission rate up to 100Mbps
- Supports OSD, on-panel, Remote, RS-232 and WebGUI control

Note: This system was tested with CAT6/23AWG cable; result may vary with cable of a different specification.

6. OPERATION CONTROLS AND FUNCTIONS

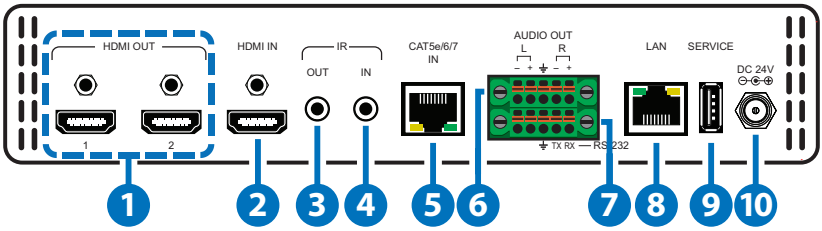
6.1 Front Panel



1. **POWER & LED:** Press this button to turn ON the device or set the device to standby mode. The LED will illuminate in red when switch to ON. This device contains power last memory and therefore, when the power is connected the device will switch to ON/ Standby according to the last status.
2. **IR WINDOW:** This IR Receiver receives the remote control signal from the packaged included remote control only with IR frequency at 38kHz.
3. **MENU:** Press this button to enter into OSD menu.

   Note: When press "MENU", then press "+", resolution will set to XGA60; When press "MENU", then press "-", resolution will set to 720p60;
4. **ENTER:** Press this button to select an OSD selection and press it again to confirm.
5. **+/-:** Press these buttons to move up/down in the OSD selection.
6. **HDBaseT/HDMI LEDs:** When source signal came with HDBaseT or HDMI, Indicate LED will turn on.

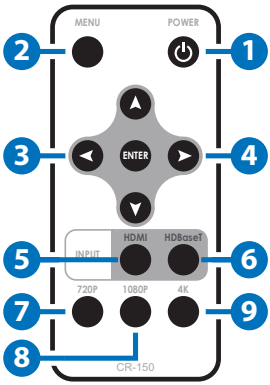
6.2 Rear Panel



1. **HDMI OUT 1~2:** Connect to HDMI TV/display or HD Amplifier for output image and or audio display.
2. **HDMI IN:** Connect from source equipment such as Blu-ray/DVD/ PS3 players, Set-Top-Box or any HDMI equipped source device for input signal sending.
3. **IR OUT:** Connect to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.
4. **IR IN:** Connect the supplied IR Receiver cable for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

   Note: Both IR IN and IR OUT signal are sending through CAT5e/6/7 cable and therefore, it does not accept the remote signal included in this package.
5. **CAT5e/6/7 IN:** Connect to the Transmitter unit with a single CAT5e/6/7 cable for receiving all data signals.
6. **AUDIO OUT:** Connect to active speaker or audio receiver for audio signal output.
7. **RS-232:** This slot is to connect with D-Sub 9-pin cable from device equipment for receiving RS-232 commands.
8. **LAN:** Connect to an active network for LAN services, WEBGUI, and Telnet control with HDBaseT.
9. **SERVICE:** This slot is reserved for manufacture use only.
10. **DC 24V:** Connect the adaptor with power cord included in the package and connect to AC wall outlet for power supply.

6.3 Remote Control



1. **POWER:** Press to turn on the unit or turn to standby mode.
2. **MENU:** Press to enter OSD menu page.
3. **UP/DOWN/LEFT/RIGHT:** When Entering Menu page, use those UP/DOWN keys to select up/ down, and Use LEFT/RIGHT key to browse selection.
4. **ENTER:** When entering menu page, use this button to enter next layer or confirm selecting.
5. **HDMI INPUT:** Press to switch to HDMI input signal.
6. **HDBaseT INPUT:** Press to switch to HDBaseT input signal.
7. **720P:** Press to scaling to 720@60 resolution.
8. **1080P:** Press to scaling to 1080@60 resolution.
9. **4K:** Press to scaling to 4K resolution.

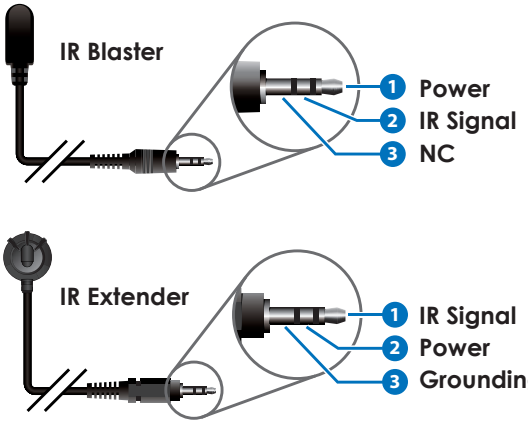
6.4 OSD Menu

MAIN MENU	SUB MENU	DESCRIPTION	DEFAULT
Input Source	HDMI	*Input source signal selection*	HDMI
	HDBaseT		
Output Format	HD	*Pass-through, 480i@60, 480p@60, 576i@50, 576p@50, 720p@50, 720p@60, 1080i@50, 1080i@60, 1080p@50, 1080p@60, 1080p@24*	1080p60

MAIN MENU	SUB MENU	DESCRIPTION	DEFAULT
Output Format (Cont.)	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*	1080p60
	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, 1920×1200@60*	
	NATIVE		
OSD Menu Timer	10 Sec	*OSD Menu appearing time*	30Sec
	30 Sec		
	60 Sec		
OSD Info Banner	ON	*OSD Info Banner showing on screen*	ON
	OFF		
Aspect Ratio	4:3	*Adjust the Aspect Ration of Screen*	FOLLOW
	16:9		
	FOLLOW		
DHCP	ON	*Turn DHCP on and off*	OFF
	OFF		

MAIN MENU	SUB MENU	DESCRIPTION	DEFAULT
Network Status	IP Status	*Static, DHCP*	Static
	MAC Address	*Show Unit MAC address*	
	IP Address	*Show Current IP address*	192.168.1.50
	Subnet Mask	*Show Subnet Mask*	255.255.255.0
	Gateway	*Show Gateway*	192.168.1.254
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 Select into the page, after press Enter, the OSD submenu will show "ON", press Enter again to confirm selection, press any other key could cancel it.*	

6.5 IR Cable Pin Assignment



6.6 RS-232 Protocol

RECEIVER	
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 bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

6.7 RS-232 and Telnet Commands

COMMAND	DESCRIPTION	PARAMETER
Help	*Display all available commands*	NONE
Help N	*Display command description*	N=command name
PWON	*Power on*	NONE
PWOFF	*Power off*	NONE
PWSTA	*Display power status*	NONE
VFmtRes	*Display format status*	NONE
VFmtRes N	*Set output video format to any resolution 480i ~ 4K2K*	N=0~42, 254 0=Pass Through 1=640×480p@60 2=720×480i@60 3=720×480p@60 4=1280×720p@60 5=1920×1080@i60 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 20=1024×768p@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=1400×1050p@60 30=1440×900p@60

COMMAND	DESCRIPTION	PARAMETER
VFmtRes N	*Set output video format to any resolution 480i ~ 4K2K*	31=1600×900p@60 32=1600×1200p@60 33=1920×1200p@60 34=2048x1080p24 35=2048x1080p50 36=2048x1080p60 37=2048x1152p60 38=3840x2160p24 39=3840x2160p25 40=3840x2160p30 41=4096x2160p24 42=4096x2160p25 254=Native
Input N	*Set input source to HDMI/ HDBT*	N= HDMI, HBDT
IPCFG	*Display IP address configure*	NONE
IPDHCP N	*Set DHCP mode on and reset telnet*	N=on, off, sta
IPStatic xxx.xxx. xxx.xxx xxx.xxx. xxx.xxx xxx.xxx. xxx.xxx	*Set static IP address, Netmask and Gateway*	X=0~255
IPQuit	*Telnet logout*	NONE
IPAddUser N N1	*Add user of telnet*	N=(User name) 0~9, a~z or A~Z (Up to 20 character) N1=(Password) 0~9, a~z or A~Z (Up to 20 character)
IPDelUser N	*Delete user of telnet*	N=User name
IPPort N	*Set telnet port*	N=1~65535
IPLogin N	*Set telnet login status*	N=on, off, sta
IPTimeout N	*Set telnet idle timeout times.*	N=1~60000(second)
Aspect N	*Set Aspect function*	N=16:9, 4:3, follow
Factory	*Set back to default settings*	NONE

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

6.8 Telnet Control

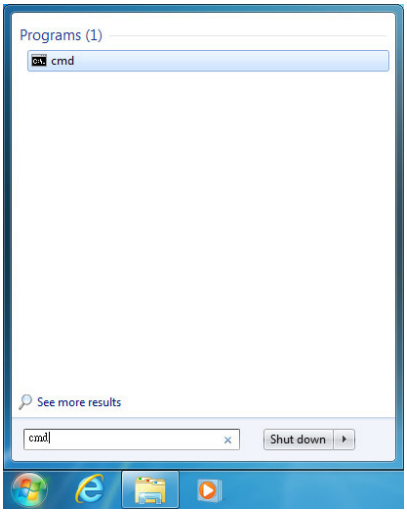
Before attempting to use the Telnet control, please ensure that both the Matrix (via the 'LAN /CONTROL' port) and the PC/Laptop are connected to the same active networks.

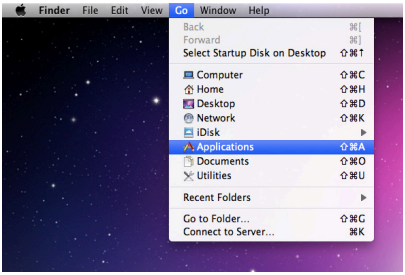
To access the Telnet control in Windows 7, click on the 'Start' menu and type "cmd" in the Search field then press enter.

Under Windows XP go to the 'Start' menu and click on "Run", type "cmd" with then press enter.

Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.



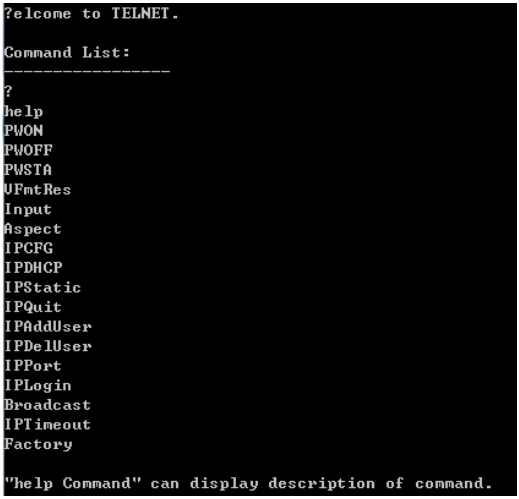


Once in the command line interface (CLI) type "telnet", then the IP address of the unit and "23", then hit enter.

```
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 bring us into the unit which we wish to control. Type "help" to list the available commands.



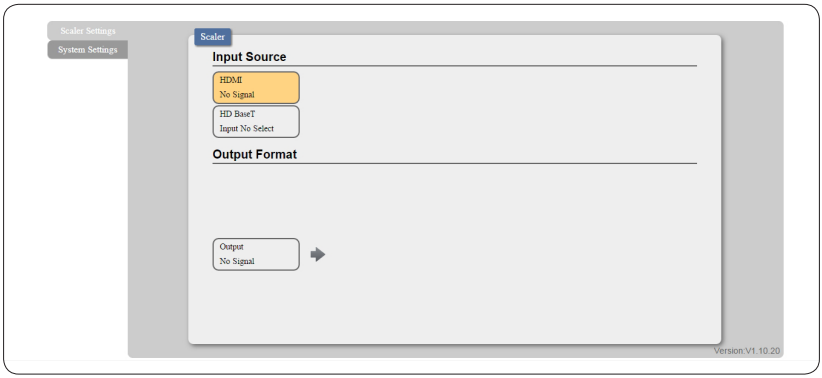
Note: Commands will not be executed unless followed by a carriage return. Commands are case-sensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.

6.9 WebGUI Control

On a PC/Laptop which is connected to an active network system, open a web browser and type device's IP address (available from OSD menu) on the web address entry bar. The browser will display the device's Scaler settings and system Settings.

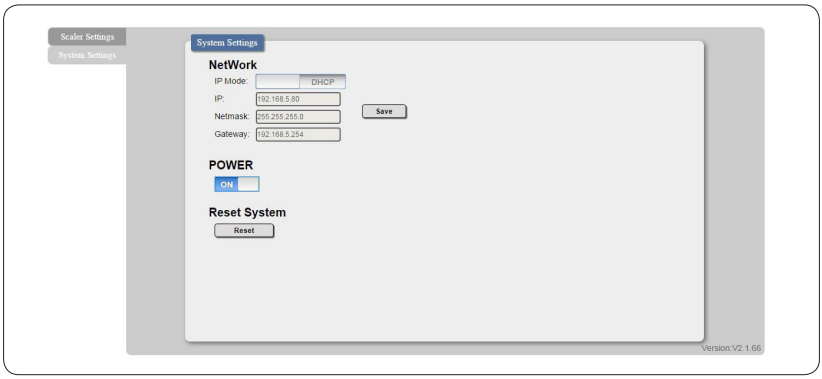
6.9.1 Scaler Settings

Click on 'Scaler Settings' to Switch input Source or output format.

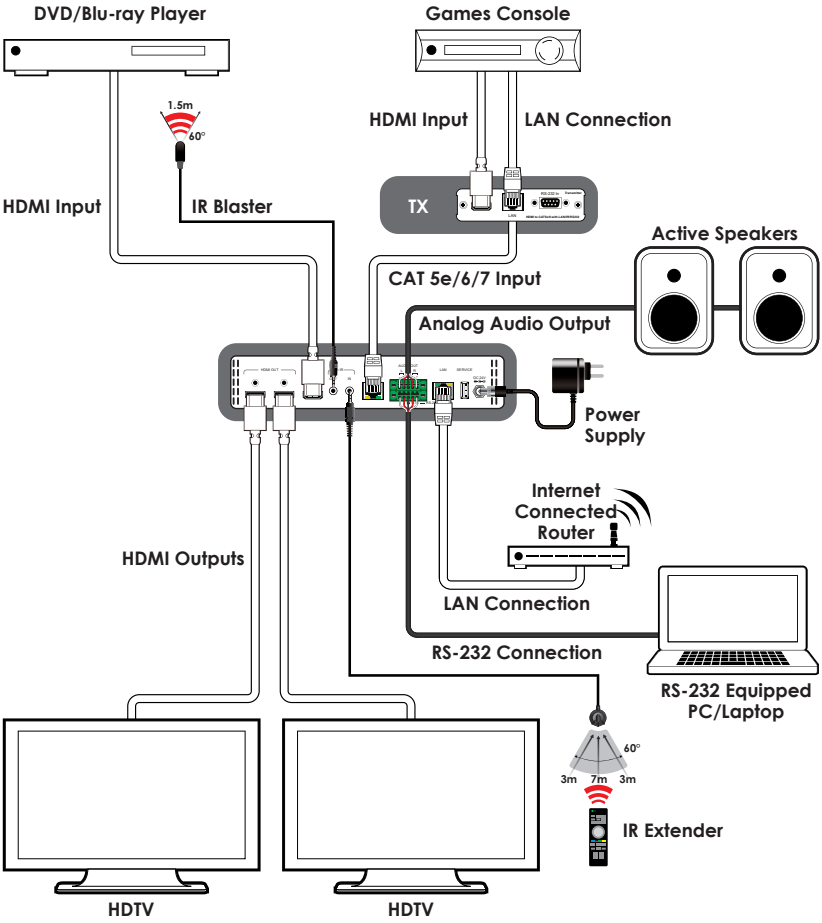


6.9.2 System Settings

Click on 'System Settings' to Change the network setting, control power on/off or reset system.



7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	340 MHz/10.2 Gbps
Input Ports	1×HDMI, 1×CAT5e/6/7, 1×LAN (RJ-45), 1×IR (3.5mm), 1×RS-232 (Terminal Block), 1×USB (Service only)
Output Ports	2×HDMI, 1×Stereo Audio (Terminal Block), 1×IR (3.5mm)
HDMI Resolutions	VGA~WUXGA (RB), 408i~1080p@24/50/60, 4K@24/25/30
IR Frequency	30~50 kHz
Baud Rate	115200 bps
HDMI Cable Distance	10 m@1080p/8-bit, 10 m@1080p/12-bit, 5 m@4K
Power Supply	24 V/1.25 A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human body model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Dimensions	219 mm (W)×156 mm (D)×43 mm (H)/ Jack Excluded 219 mm (W)×164.3 mm (D)×51 mm (H)/ Jack Included
Weight	1136 g
Chassis Material	Metal
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	15 W/25 W (PoC)

8.2 Supported Resolutions

Resolution	Input	Output
640×480@60/72/75	√	√
720×480@60	√	√
720×576p@50	√	√
800×600@60/72/75	√	√
1024×768@60/70/75	√	√
1280×720@50/60	√	√
1280×768@60	√	√
1280×800@60	√	√
1280×1024@60	√	√
1360×768@60	√	√
1600×1200@60	√	√
1920×1080i@50/60	√	√
1920×1080p@24/25/30	√	√
1920×1080p@50/60	√	√
1920×1200@60 (RB)	√	√
3840×2160@24/25/30	√	√
4096×2160@24	√	√

8.3 CAT5e/6/7 Cable Specifications

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video Formats
CAT5e/6/7	100 m	≤225 MHz	≤5.3 Gbps (HD Video)	Up to 1080p@60 Hz, 36-bit, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	70 m	>225 MHz	>5.3 Gbps (Ultra HD Video)	4K2K@30 Hz video formats

9. ACRONYMS

ACRONYM	COMPLETE TERM
CAT5e	Category 5 Cable
CAT6	Category 6 Cable
CAT7	Category 7 Cable
CLI	Command Line Interface
DTS	Digital Theater System
GUI	Graphical User Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
IP	Internet Protocol
IR	Infrared
LAN	Local Area Network
OSD	On-Screen Display
PoC	Power over Cable
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduce Blanking)

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