



## DCT-23HD

HDBaseT™ 4K UHD with Digital Presentation Amplifier



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
RDV1	23/01/14	Preliminary Release
RDV2	17/04/15	Power Adaptor
RDV3	29/05/15	e-Audio connection

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## 1. INTRODUCTION

The HDBaseT™ 4K UHD with Digital Presentation Amplifier can accept analog and digital audio from 3.5Ø line in, L/R RCA, HDMI, optical and coaxial inputs and output synchronously to L/R speaker, HDMI and HDMI over CAT5e/6/7 Receiver. Suitable for any musical events use, sound addition, sound amplifying and AV extension. With audio sampling rate supports up to 96kHz and I/O data rate supports up to 24-bit, it provides a high standard of quality sound presentation and can amplifier sound up to -80dB. The system also support HDBaseT™ features including the transmission/receiving high definition audio and video, PoC (Power over Cable), RS-232 and Ethernet up to 100 meters. The HDMI input/output resolution supports up to 4Kx2K, 3D, 36-bit Deep color, Hi-Def. new lossless audio and other features defined by the HDMI specifications.

## 2. APPLICATIONS

- Public Speech
- Show even audio set up
- Home theater/Entertainment
- Educational/Lecture presentation

## 3. PACKAGE CONTENTS

- 1 x HDBaseT 4K UHD with Digital Presentation Amplifier
- 1 x Remote Control CR-141
- 1 x 24V/3.75A DC Power Adaptor
- 1 x Power Cable
- 1 x Rack Ears Set
- Operational Manual

## 4. SYSTEM REQUIREMENTS

Input audio source equipment such as DVD/Blu-ray players, PC, CD player, MP3, HDMI over CAT5e/6/7 Transmitter and Receiver and etc.... with output display TV/monitor and active speakers and connection cables.

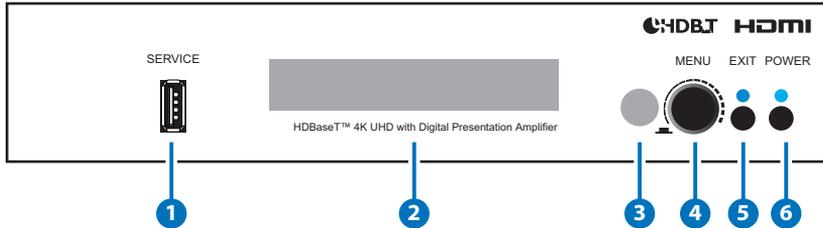
## 5. FEATURES

- Supports Digital to Analog audio Conversion (DAC) and Analog to
- Digital audio Conversion(ADC)
- Supports input sampling rate up to 96kHz and output at 48kHz
- Speaker each output channel supports 30W/4ohm
- Synchronous output sound on both digital and analog
- Supports HDTV resolutions up to 4Kx2K (3840x2160@24/25/30 & 4096x2160@30Hz)
- Supports distances up to 100 meters through CAT5e/6/7 cables
- HDBase™ support PoC (Power over Cable), RS-232 and Ethernet
- Supports RS-232, Telnet, WebGUI, IR and on-panel controls
- Sound supports up to -80dB



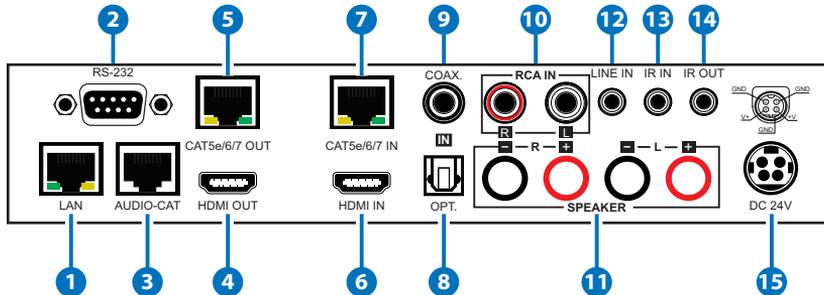
## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel



- 1 Service:** Connect with USB flash driver for firmware update only.
- 2 OLED:** Display current input source selection and volume setting.
- 3 IR Window:** Accept IR signal from the remote control included in the package.
- 4 MENU:** This button has two usage, one for volume control and the other for menu selection. Turn the wheel to adjust the output sound volume before entering into menu selection or press it to enter into the menu selection then turn the wheel to rotate from the selection and press it again to enter or to confirm the selection.
- 5 EXIT:** Press this button to exit from the menu selection. When outside the menu selection press this button to mute the output sound, the LED will illuminate. Press it again to unmute.
- 6 POWER:** Press this button to turn on the device and the LED will illuminate in blue, press it again to switch to standby mode and the LED will turn red.

## 6.2 Rear Panel



- 1 **LAN:** Connect from PC/Laptop with RJ-45 cable for Telnet/WebGUI controls.
- 2 **RS-232:** Connect from PC/Laptop with D-Sub 9pin cable for RS-232 controls.
- 3 **AUDIO-CAT:** Connect from audio Transmitter over CAT5e/6/7 extender for audio receiving up to 300m.
- 4 **HDMI OUT:** Connect to HD TV/monitor for both audio and video display.
- 5 **CAT5e/6/7 OUT:** Connect to HDMI over CAT5e/6/7 Receiver for Audio & Video, IR, RS-232, LAN and PoC signal sending up to 100m.
- 6 **HDMI IN:** Connect to DVD/Blu-ray player or any HDMI source equipment for input audio and video signal sending.
- 7 **CAT5e/6/7 IN:** Connect from HDMI over CAT5e/6/7 Transmitter for receiving Audio & Video, IR, RS-232 and LAN signal up to 100m away.
- 8 **OPT. IN:** Connect from source equipment such as Set-top-box or PS3 or any other source with optical output for audio signal sending.
- 9 **COAX. IN:** Connect from source equipment such as Set-top-box or PS3 or any other source with coaxial output for audio signal sending.
- 10 **RCA IN:** Connect from audio source equipment with RCA jack for stereo audio input.
- 11 **SPEAKER:** Connect from speakers with wired cable for stereo audio output.



- 12 **LINE IN:** Connect from audio device with 3.5ø pone jack for stereo audio signal input.
- 13 **IR IN:** Connect the IR Extender for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the equipment to be controlled.
- 14 **IR OUT:** Connect to IR Blaster for IR signal transmission. Place the IR Blaster indirect line-of-sight of the equipment to be controlled.
- 15 **DC 24V:** Plug the 24V DC power supply into the unit and connect the adaptor to an AC outlet.

### 6.3 RS-232 Pin Assignment

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



Remote Control	
PIN	Assignment
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 115200bps

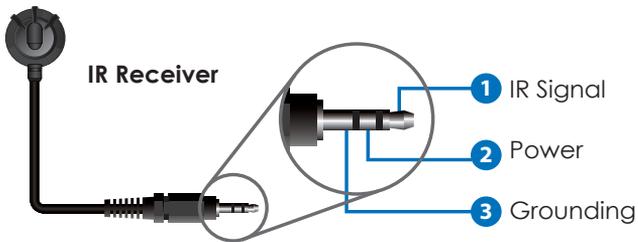
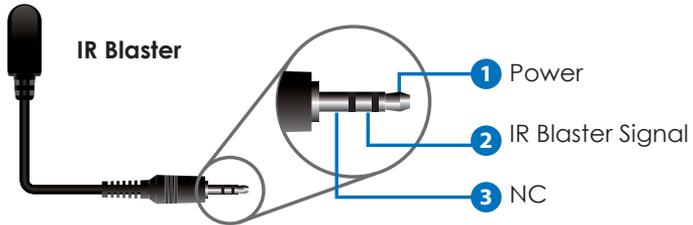
Data bit: 8 bits

Parity: None

Flow Control: None

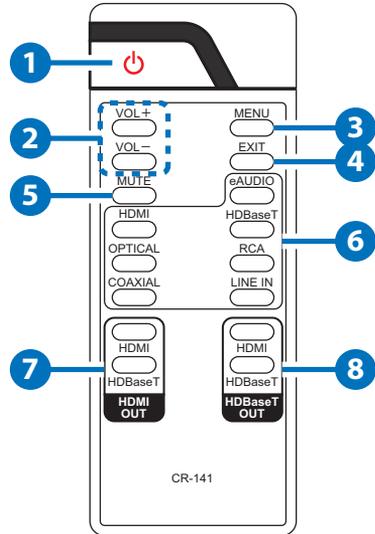
Stop Bit: 1

## 6.4 IR Cable Pin Assignment



## 6.5. Remote Control

- 1 Power:** Press this button to turn on the device or to set it to standby mode.
- 2 Vol +/-:** Press these buttons to adjust the volume.
- 3 MENU:** Press this button to enter into the menu selection
- 4 EXIT:** Press this button to exit the selection.
- 5 MUTE:** Press this button to mute the output audio sound. Press it again to unmute.
- 6 Audio selection:** Press one of these hot key to select audio input source.
- 7 HDMI OUT:** Press these hot keys to select HDMI output source signal.
- 8 HDBaseT OUT:** Press these hot keys to select HDBaseT output source signal.



## 6.6 OLED Menu

Function Select	Audio In		
	Display Set		
	IP Config		
	Reset to Default		
	EDID Mode		
	Video Set		
Audio Select	Line IN		
	RCA IN		
	Optical		
	Coaxial		
	eAudio		
	HDMI		
	HDBaseT		
Display Setting	TimeOut 5s		
	TimeOut 10s		
	TimeOut 15s		
IP Configuration	IP Config		
	SN		
	GW		
Reset to Default	OK?		
EDID Mode Setting	INT		
	EXT		
	HDBaseT		
	HDMI		
Video Select	HDMI	HDMI Setting	HDMI
			HDBaseT
	HDBaseT	HDBaseT Setting	HDMI
			HDBaseT



## 6.7 Telnet & RS-232 Command

Command	Description	Parameter
?	DISPLAY LIST OF COMMANDS, CODE ENTRY IS CASE SENSITIVE	
HELP	DISPLAY LIST OF COMMANDS, CODE ENTRY IS CASE SENSITIVE	
PWR	POWER CONTROL	0:OFF 1:ON
SOURCE	AUDIO IN SELECT	S:STATUS 0:LINE IN 1:RCA IN 2:OPT. 3:COAX. 4:eAUDIO 5:HDMI 6:HDBaseT
VOL	OUTPUT VOLUME SETTING	S:SHOWVOL +: +0.5dB ++: +2dB -: -0.5dB --: -2dB or 0~-80dB
MUTE	OUTPUT VOLUME MUTE CONTROL.	S:STATUS 0:UN-MUTE 1:MUTE
HDMI	HDMI OUT SOURCE SELECT	S:STATUS 0:HDMI 1:HDBASET
HDBASET	HDBASET OUT SOURCE SELECT	S:STATUS 0:HDMI 1:HDBASET
EDID	EDID MODE SELECT	S:STATUS 0:INT 1:EXT 2:HDBaseT 3:HDMI
FADEFAULT	FACTORY DEFAULT SETTING	
REBOOT	REBOOT THE UNIT	
SIPMODE	SET THE IP MODE	0:STATIC IP 1:DHCP
IPCONFIG	PRINT THE IP CONFIGURATION TO THE SCREEN	
SHOWMAC	PRINT THE MAC ADDRESS TO THE SCREEN	

Command	Description	Parameter
SHOWTPORT	PRINT THE TELNET COMMUNICATION PORT TO THE SCREEN	
SHOWHPORT	PRINT THE HTTP COMMUNICATION PORT TO THE SCREEN	
SIPADD	SET THE IP ADDRESS	
SNETMASK	SET THE NET MASK ADDRESS	
SGATEWAY	SET THE GATEWAY ADDRES	
SHTTTPORT	SET THE HTTP COMMUNICATION PORT	[1-65535] [80]
STELNETPORT	SET THE TELNET COMMUNICATION PORT	[1-65535] [23]

**Note:**

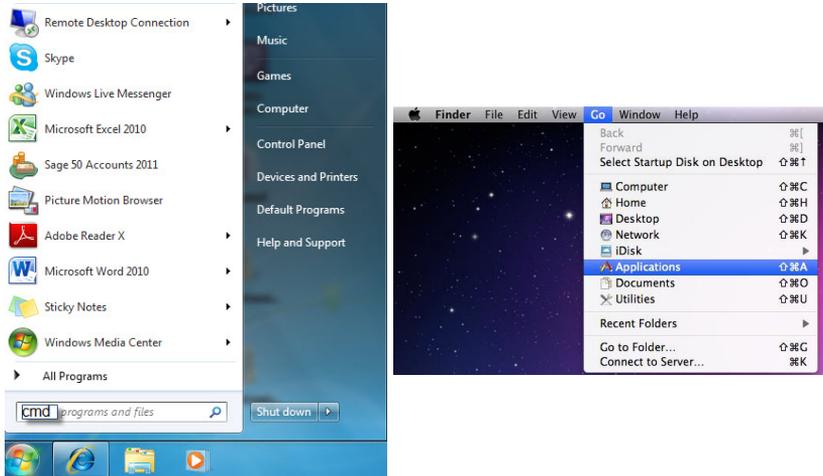
1. All the RS-232 command will be not executed unless followed with a carriage return. All commands are insensitive.

## 6.8 Telnet Control

To access the telnet control under MS windows, click 'Start' menu and type "cmd" in the search field then press enter.

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

See below for reference.



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

```
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\CYP>telnet 192.168.5.153 23
```

Press "Help" or "?" then hit enter to bring up all available commands.

```
Command List
-----
HELP
PWR
SOURCE
UOL
MUTE
HDMI
HDBASET
EDID
FADEFAULT
REBOOT
SIPMODE
IPCONFIG
SHOWMAC
SHOWTPORT
SHOWHPORT
SIPADD
SNETMASK
SGATEWAY
SHTTTPORT
STELNETPORT
```

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



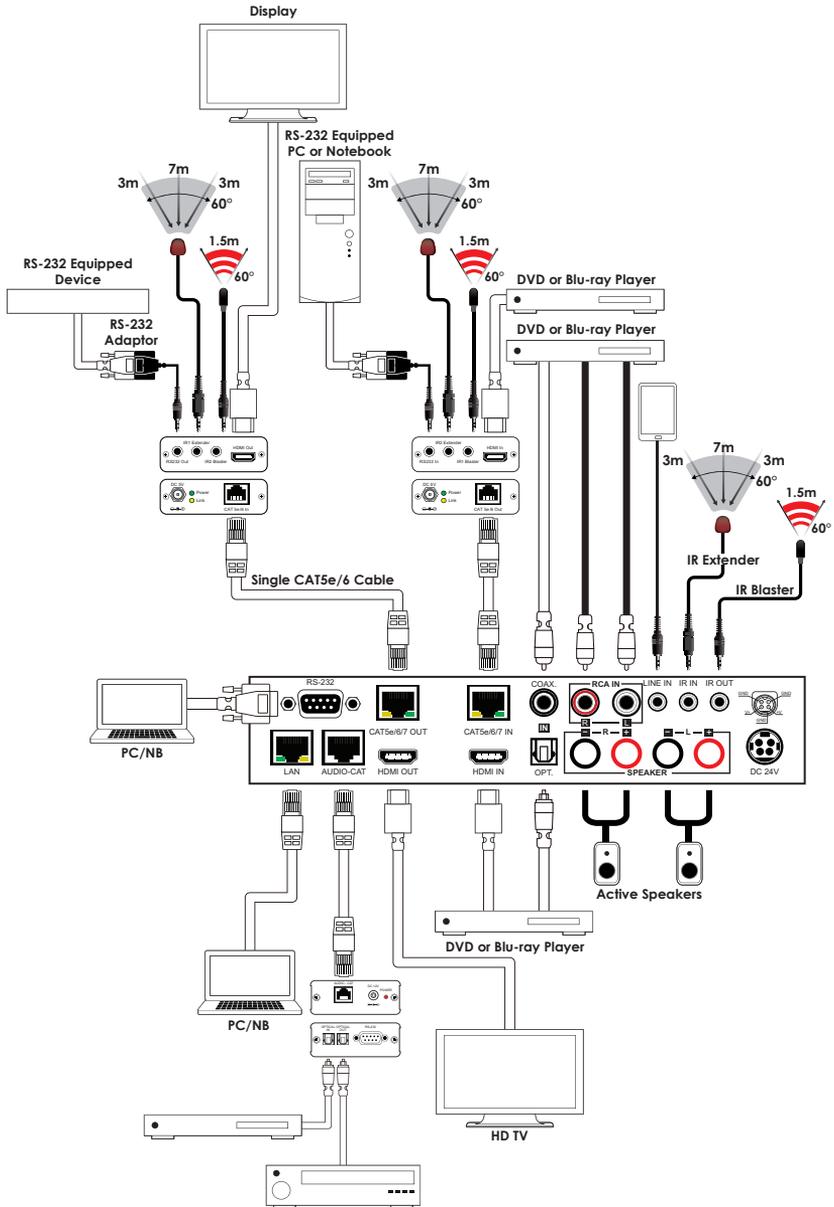
## 6.9 WebGUI Control

On a PC/Laptop that is connected to an active network system, open a web browser and type device's IP address (available from LCM monitor) on the web address entry bar. The browser will display the device's control page.

The image displays a web-based control interface for a device, organized into four main sections: Control, Video, Network, and Audio. Each section contains various configuration options and controls.

- Control:** Features a 'Power' toggle switch currently set to 'ON'.
- Video:** Includes dropdown menus for 'HDMI Source' (set to 'HDMI') and 'HDBaseT Source' (set to 'HDBaseT').
- Network:** Contains a checked 'DHCP' checkbox and input fields for 'IP' (192.168.5.121), 'Netmask' (255.255.255.0), 'Gateway' (192.168.5.254), 'HTTP port' (80), and 'Telnet port' (23). A 'Save Changes' button is located at the bottom of this section.
- Audio:** Features a 'Source' dropdown menu set to 'OPTICAL', a 'Volume' slider set to -20 dB, and a 'Mute' toggle switch set to 'OFF'. A 'Reset to Default' button is located at the bottom of this section.

## 7. CONNECTION DIAGRAM



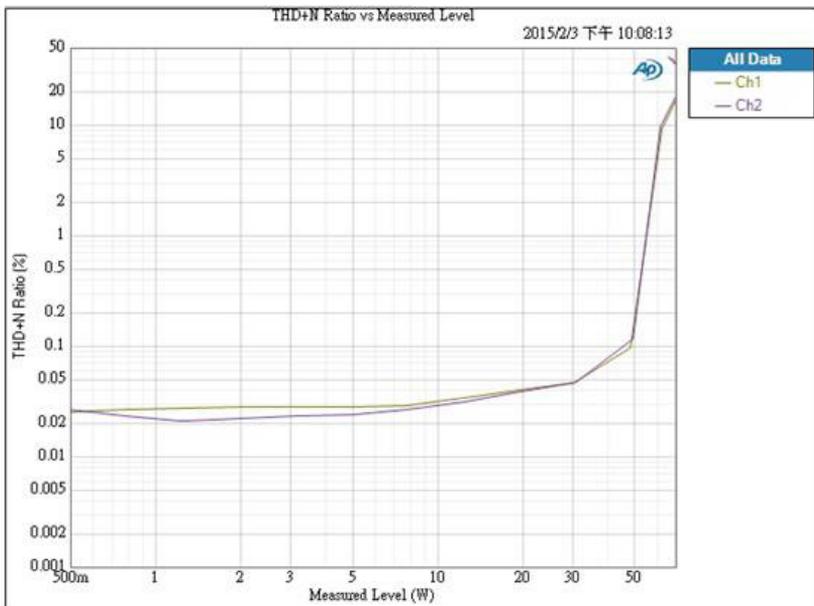


## 8. SPECIFICATIONS

<b>Video Bandwidth</b>	300MHz/9Gbps
<b>Ethernet Speed</b>	100Mbps
<b>Input ports</b>	1x HDMI, 1xCAT5e/6/7, 1 x Optical, 1 x Coaxial, 1 x 3.5Ø Line in, 1 x R/L RCA, 1 x D-Sub 9pin (RS-232), 1 x RJ-45 (LAN), 1 x Keypad, 1 x IR, 1 x AUDIO-CAT
<b>Output ports</b>	1 x HDMI, 1 x CAT5e/6/7, 1 x R/L, 1 x IR, 1 x AUDIO-CAT(same as input port)
<b>Digital Audio</b>	LPCM 2CH
<b>Audio Sampling Rate</b>	Up to 96kHz
<b>Stereo Input/Output Level</b>	2 Vrms $\pm$ 0.2
<b>Resolution</b>	480i~1080p@50/60, 1080p@24, 4K x 2K (3840x2160/4096x2160@30Hz)
<b>ESD Protection</b>	Human body model: $\pm$ 8kV (air-gap discharge)
<b>Power Supply</b>	24V/ 3.75A DC (US/EU standards, CE/ FCC/UL certified)
<b>Dimensions</b>	215mm(W) x 172.5mm(D) x 46mm(H)
<b>Weight</b>	1060 g
<b>Chassis Material</b>	Aluminum
<b>Silkscreen Color</b>	Black
<b>Operating Temperature</b>	Operating from 0°C ~ 40°C
<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>	59.4W

### Amplifier Performance:

- 2 X 45 W @4Ohm < 0.5% THD+N
- 2 X 25 W @8Ohm < 0.5% THD+N
- Frequency Response < +/- 1dB
- SNR > 70dB @ 20hz-20Khz A weighted
- THD+N @1W <0.05% @ 1KHz
- THD+N @1W <0.1% @ 20Hz-20KHz
- Crosstalk @1W <-70dB @ 20Hz-20KHz









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