

# HDAV<sup>®</sup>

## HDMI Audio & Video Dual CAT5/RJ45 Extender Kit

User Manual

(HD-C5)



**[Must be used with Solid CAT5e or CAT6 Cables]**

All information is subject to change without notice.  
All names & trademarks are property of their respective owners.  
Rev.1103

Full HD  
1080

WUXGA  
x1920  
x1200

dvi  
digital visual interface

HDMI<sup>™</sup>  
HIGH-DEFINITION MULTIMEDIA INTERFACE  
HDCP<sup>™</sup>  
HIGH-DEFINITION CONTENT PROTECTION

FC CE RoHS  
Compliance

Made in Taiwan



## Safety and Notice

The **HD-C5 HDMI Audio & Video Dual CAT5/RJ45 Extender Kit** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **HD-C5** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

## Table of Contents

---

◇ <b>Introduction</b> .....	<b>p . 2</b>
◇ <b>Panel Description</b> .....	<b>p . 4</b>
◇ <b>Hardware Installation</b> .....	<b>p . 6</b>
◇ <b>Notice</b> .....	<b>p . 7</b>

The **HD-C5 HDMI Audio & Video Dual CAT5/RJ45 Extender Kit** boosts up your audio and video transmission distance up to 60m (200ft) in HDTV 1080i format. With two low cost Cat-5e/6 cables, users can readily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI or DVI-enabled TV sets or LCD PC monitors. This cost effective flexibility makes HDCP compliant Blu-ray Disc players or PS3 transmit high quality audio and video with a greater distance at the minimal cost, when integrating several components apart.

The HD-C5 includes two units: transmitting and receiving units. The transmitting unit is used to transfer the HDMI/DVI signals input and carry the signals through two low cost Cat-5e/6 cables. The receiving unit is responsible for equalizing transferred HDMI multimedia data. The transmission distance between the sending and receiving units can be up to 60m (200ft) under HD (720p/1080i) or 40m (130ft) under Full HD (1080p). With an 8-level equalization rotary control switch on the receiving unit, users can adjust the equalization strength to the received HDMI signals accordingly, and therefore optimize the transmission distance between HDMI source and display.

## Features

- Support HDMI Deep Color & 3D
- Extends the transmission distance up to 60m (200ft) from the sources under 1080i or 720p
- Extends the transmission distance up to 40m (130ft) from the sources under 1080p
- Provides independent DDC channel, fully HDCP compliant
- Minimizes the cable skew by adjustable 8-level equalization rotary control switch
- Purely unaltered uncompressed 7.1ch digital HDMI over CAT5/RJ45 cable transmission
- Wall mounting housing design for easy and robust installation



*The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ-45 connectors is recommended.*

# Specifications & Package Contents

Model Name		HD-C5	
<b>Technical</b>			
Role of usage	Transmitter [TX]		Receiver [RX]
HDMI compliance	HDMI Deep Color & 3D		
HDCP compliance	Yes		
Video bandwidth	Single-link 225MHz [6.75Gbps]		
Video support	480i / 480p / 720p / 1080i / 1080p60		
HDMI over CAT5 /RJ45 transmission [8-bit]	Full HD (1080p)-40m (130ft) [CAT5e] / 50m (165ft) [CAT6] HD (720p/1080i)-50m (165ft) [CAT5e] / 60m (200ft) [CAT6]		
Audio support	Surround sound (up to 7.1ch) or stereo digital audio		
Signal equalization	8-level digital rotary switch for signal level control at receiver		
Input TMDS signal	1.2 Volts [peak-to-peak]		
Input DDC signal	5 Volts [peak-to-peak, TTL]		
ESD protection	[1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±8kV		
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]		
Input	1x HDMI	2x RJ-45	
Output	2x RJ-45	1x HDMI	
HDMI source control	No		
IR remote control	N/A		
HDMI connector	Type A [19-pin female]		
RJ-45 connector	WE/SS 8P8C with 2 LED indicators		
3.5mm connector	None	None	
Rotary control switch	None	Signal level	
<b>Mechanical</b>			
Housing	Metal enclosure		
Dimensions [L x W x H]	Model	[TX/RX] ► 85x60x25mm [3.3"x2.4"x1"]	
	Package	270 x 175 x 80mm [10.6"x6.9"x3.1"]	
Weight	Model	315g [11oz]	
	Package	685g [1.5 lbs]	
Fixedness	Wall-mounting case with screws		
Power supply	5V 4A DC		
Power consumption	1 Watt [max]		
Operation temperature	0~40°C [32~104°F]		
Storage temperature	-20~60°C [-4~140°F]		
Relative humidity	20~90% RH [no condensation]		
<b>Package Contents</b>	1x HD-C5 1x 5V power supply unit 1x User Manual		

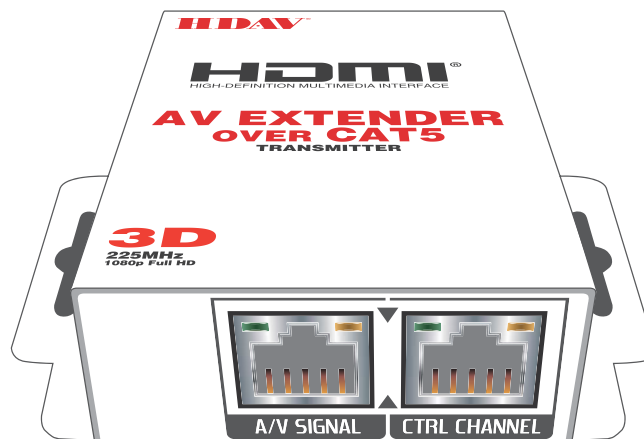
# PANEL DESCRIPTION

## Input Panel — Transmitting Unit of HD-C5



**HDMI IN:** Connect to a HDMI source with a HDMI male-male cable here

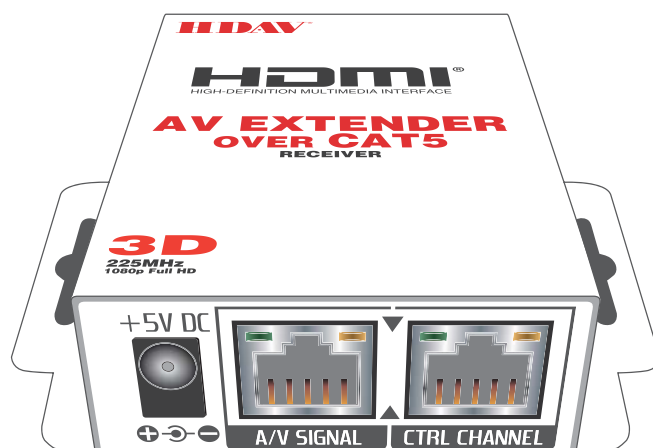
## Output Panel — Transmitting Unit of HD-C5



**A/V SIGNAL:** Plug in a Cat-5e/6 cable that needs to be linked to the **A/V SIGNAL** port on the receiving unit of HD-C5.

**CTRL CHANNEL:** Plug in a Cat-5e/6 cable that needs to be linked to the **CTRL CHANNEL** port on the receiving unit of HD-C5.

## Input Panel — Receiving Unit of HD-C5



**A/V SIGNAL:** Plug in a Cat-5e/6 cable that needs to be linked to the **A/V SIGNAL** port on the transmitting unit of HD-C5.

**CTRL CHANNEL:** Plug in a Cat-5e/6 cable that needs to be linked to the **CTRL CHANNEL** port on the transmitting unit of HD-C5.

**+5V DC:** Connect to 5V DC power supply unit.

## Output Panel — Receiving Unit of HD-C5

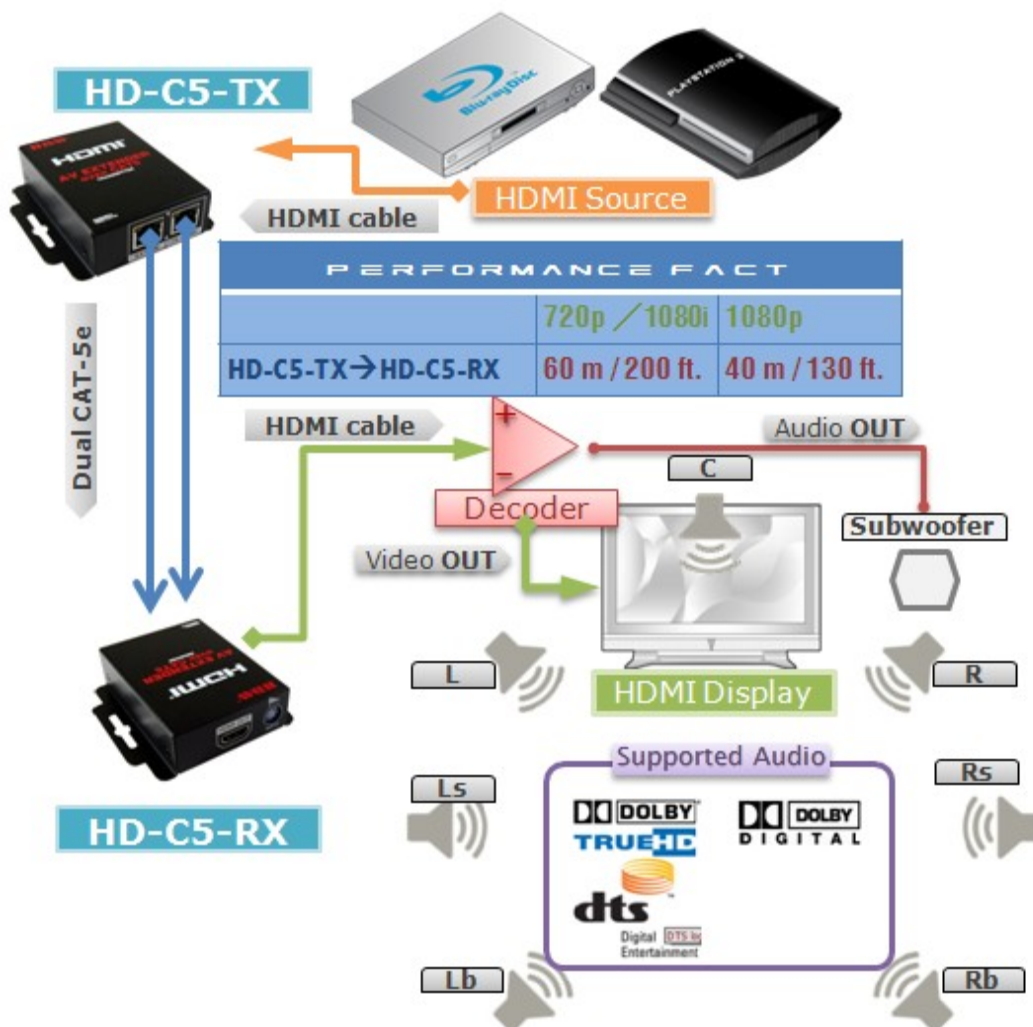


**HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable here.

**Signal Level:** Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. It is recommended to switch from 7 to 0 to find the optimal visual experience.

# HARDWARE INSTALLATION

1. Connect a HDMI or DVI source (such as a Blu-ray Disc player) to the transmitting unit of HD-C5.
2. Connect a HDMI or DVI display (such as a LCD HDTV) to the receiving unit of HD-C5.
3. Connect two Cat-5e/6 cables between the transmitting and receiving units via **A/V SIGNAL** and **CTRL CHANNEL** ports respectively.
4. Make sure these two Cat-5e/6 cables are tightly connected and not loose.
5. Plug in 5V DC power supply unit to the power jack on the receiving unit on HD-C5.
6. If you see flickering or blinking image on the display, try to adjust the rotary control switch to improve the cable skew. 0 stands for the strongest HDMI signal level for longest possible transmission length while 7 stands for the weakest HDMI signal level for short transmission length. Try adjusting the signal level from 7 to 0 to find the optimal setting for the HDMI over CAT5/RJ45 transmission.



1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide EDID information of the DVI or HDMI display.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m or 1,000ft bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). A solid UTP Cat-5e cable shows longer transmission range than a stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for Cat-5e/6 cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in Cat-5e/6 cables, double shielded STP cables are better suited than unshielded UTP cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the Cat-5e/6 cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input (HDMI input 1) generally can produce better transmission performance among all HDMI inputs.



## Performance Guide for HDMI over Category Cable Transmission

Performance rating		Type of category cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
	Shielded (STP)	★	★	★★
Termination		Please use EIA/TIA-568-B termination (T568B) at any time		