HDMI over CAT-5 Extender Kit with IR Control Path

ET-HD0101TC
ET-HD0101RC

User Manual

◄ V1.0 ►

DataBay

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Safety and Notice

The **ET-HD0101-MC HDMI 1.3 over CAT5 Extender with IR Pass-through** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the ET-HD0101-TC 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.

Introduction

The **ET-HD0101-MC HDMI over CAT5 Extender with IR Pass-through** boosts up your HDMI transmission distance up to 60m (200ft) in HDTV 720p / 1080i format. With two low cost Cat-5/5e/6 LAN 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 remote HDMI displays such as HDTV, LCD PC monitors, or projectors. This cost effective flexibility makes HDCP compliant DVD players or PS3 transmit high quality video and audio at a greater distance and the minimal cost. In addition, with the embedded infrared (IR) receiver and blaster to facilitate the IR pass-through, users can enjoy high quality audio/video and control the HDMI sources from the remote site instantly.

The ET-HD0101-MC includes two units: ET-HD0101-TC as the transmitting unit and ET-HD0101-RC as the receiving unit. The transmitting unit is used to transfer the audio/video and IR signals through two low cost Cat-5/5e/6 LAN cables. The receiving unit is responsible for equalizing transferred HDMI multimedia data and re-sending IR signals received from the remote control of the HDMI source device. The transmission distance between the sending and receiving units can be up to 60m (200ft) under HD resolution (720p or 1080i) or 40m (130ft) under Full HD resolution (1080p). With 8-level equalization rotary control switch on the receiving unit, users can adjust the strength of the signal level to the received HDMI signals accordingly, and therefore optimize the transmission length between HDMI source and display.

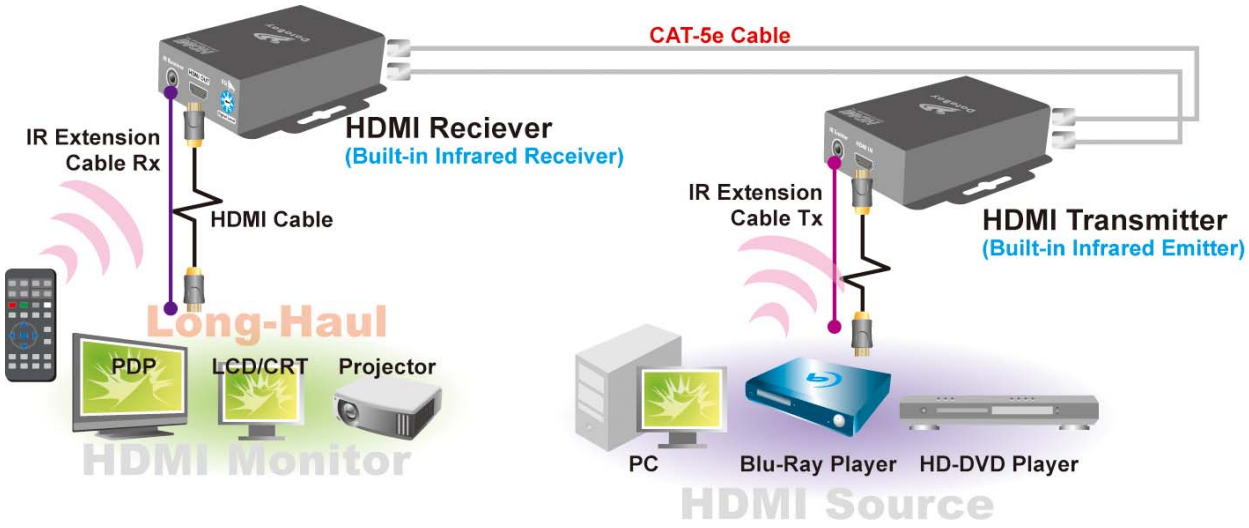
ET-HD0101-TC

ET-HD0101-RC

Features

- HDMI 1.3c compliant
- 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
- Embedded IR pass-through from RX to TX
- Pure unaltered uncompressed 7.1ch digital HDMI over LAN cable transmission
- Wall mounting housing design for easy and robust installation
- Allows cascading
- Perfectly integrated with other HDMI over CAT5 series products

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		ET-HD0101-MC	
Technical		ET-HD0101-TC	ET-HD0101-TC
Role of usage		Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 1.3c	
HDCP compliance		Yes	
Video bandwidth		Single-link 225MHz [6.75Gbps]	
Video support		480i / 480p / 720p / 1080i / 1080p60	
HDMI transmission over LAN cable		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	
Equalization		8-level digital rotary switch for signal level control at RX	
Input TMDS signal		1.2 Volts [peak-to-peak]	
Input DDC signal		5 Volts [peak-to-peak, TTL]	
ESD protection		[1] Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge] [2] Core chipset — ±8kV	
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input		1x HDMI	2x RJ-45 1x 3.5mm
Output		2x RJ-45 1x 3.5mm	1x HDMI
HDMI source control		Controllable via IR pass-through from RX to TX through LAN cable	
IR remote control		Electro-optical characteristics: τ = 25° Carrier frequency: 36-40kHz	
HDMI connector		Type A [19-pin female]	
RJ-45 connector		WE/SS 8P8C with 2 LED indicators	
3.5mm connector		IR blaster	IR receiver
Rotary control switch		None	Signal level
Mechanical		**ET-HD0101-TC**	
Housing		Metal case	
Dimensions [L x W x H]	Model	[TX/RX] – 85 x 60 x 25mm [3.3”x2.4”x1”]	
	Package	270 x 175 x 80mm [10.6”x6.9”x3.1”]	
	Carton	450 x 370 x 300mm (1’6”x1’3”x1’]	
Weight	Model	320g [11.3oz]	
	Package	720g [1.6 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]	
Package Contents		1x ET-HD0101-MC [TX & RX] 1x IR emitter cable 1x IR receiver cable 1x 5V power adapter 1x User Manual	

Panel Descriptions

Front Panel of ET-HD0101-TC

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

IR Blaster:
Infrared 3.5mm socket for plugging in the extension cable of IR blaster

Rear Panel of ET-HD0101-TC

A/V SIGNAL:
Plug in a Cat-5/5e/6 cable that needs to be linked to the **A/V SIGNAL** port of the receiving unit ET-HD0101-TC.

CTRL CHANNEL:
Plug in a Cat-5/5e/6 cable that needs to be linked to the **CTRL CHANNEL** port of the receiving unit ET-HD0101-TC.

Front Panel of ET-HD0101-RC

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. 0 – 7 = strongest – weakest for respective transmission length [long to short]. It is recommended to switch from 7 to 0 to find the optimal visual experience.

IR Receiver:
Infrared 3.5mm socket for plugging in the extension cable of IR receiver.

Rear Panel of ET-HD0101-RC

A/V SIGNAL:
Plug in a Cat-5/5e/6 cable that needs to be linked to the **A/V SIGNAL** port of the transmitting unit ET-HD0101-TC.

CTRL CHANNEL:
Plug in a Cat-5/5e/6 cable that needs to be linked to the **CTRL CHANNEL** port of the transmitting unit ET-HD0101-TC.

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

Panel Descriptions

IR Cables

IR Blaster

IR Receiver

IR Sockets

ET-HD0101-TC

IR Blaster:

Plug in an IR blaster here to emit all IR command signals received from the IR receiver to control the HDMI source device.

ET-HD0101-RC

IR Receiver:

Plug in an IR receiver here to receive all IR command signals from the IR remote control of the HDMI source device.

Definition of IR Earphone Jack

IR Blaster

1=IR signal (38KHz)
2=Grounding

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IR Receiver

1=Power
2=IR signal(38KHz)
3=Grounding

You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

Supported IR Data Format

Data Format	Suitable	Not Recommended
NEC	☑	
RC5	☑	
TOSHIBA MICOM CODE	☑	
GRUNDIG CODE	☑	
SONY 12 BIT CODE	☑	
SONY 15 BIT CODE	☑	
SONY 20 BIT CODE	☑	
RCA CODE		☑
RCM CODE		☑
MATSUSHITA CODE		☑
MITSUBISHI CODE	☑	
ZENITH CODE	☑	
JVC CODE	☑	
M50560-001P	☑	
MN6125H	☑	
MN6125L	☑	
MN6014_C5D7	☑	
MN6014-C6D6	☑	
MC14457P	☑	
LC7464(AHEA)	☑	
GEMINI_CM	☑	

Supported IR Data Format

1. Connect your HDMI or DVI source (such as a Blu-ray Disc player) to the transmitting unit ET-HD0101-TC.
2. Connect the IR blaster to the transmitting unit ET-HD0101-TC, and make the IR blaster directly point to the IR sensor of the HDMI source device.
3. Connect your HDMI or DVI display (such as a LCD or plasma HDTV) to the receiving unit ET-HD0101-TC.
4. Connect the IR receiver to the receiving unit ET-HD0101-TC, and make the IR receiver directly point to the user.
5. Connect two Cat-5/5e/6 cables between the transmitting and receiving units via A/V SIGNAL and CTRL CHANNEL ports respectively.
6. Make sure your LAN cables are tightly connected and not loose.
7. Plug in 5V DC power cord to the power jack of the receiving unit ET-HD0101-TC.
8. **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 transmission.**

Notice

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz solid LAN cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m/1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission range than stranded STP CAT6 cable. For long extension users, solid LAN cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, one can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the LAN 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 LAN 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 LAN Cable Transmission

Performance rating		**Type of LAN 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		