



HDMI™ CAT Extender Extends 1 HDMI™ Signal over Single CAT with Bi-directional IR pass-through

User's Guide



Model no.
PT-E-HD10

Designed in Germany
Made in Taiwan

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Section 1: Getting Started

1.1 Safety and Notice

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

The **PT-E-HD10 HDMI™ CAT Extender Extends 1 HDMI™ Signal over Single CAT with Bi-directional 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 PT-E-HD10 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.

1.2 Introduction

The **PT-E-HD10 HDMI™ CAT Extender Extends 1 HDMI™ Signal over Single CAT with Bi-directional IR pass-through** boosts up your video/audio transmission distance up to 60m (200ft) in HDTV 1080i format, and 40m (130ft) in HDTV 1080p format. PT-E-HD10 also supports the most advanced 3D video format compliant with HDMI specification and therefore guarantees the highest 3D video compatibility on the market. With only one cost effective Cat.X cable, 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. With the advanced design for the latest HDMI technology, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP supports and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS3 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart. In addition, PT-E-HD10 is also equipped with bi-directional IR pass-through path. This bonus feature allows users to boost IR control distance up to 100m (330 ft) and makes IR control possible through only single Cat.X cable including HDMI signals.

The PT-E-HD10 includes two units: transmitting unit PT-E-HD10-TX and receiving unit PT-E-HD10-RX. The transmitting unit is used to capture the input HDMI / DVI signals with IR control packets and carry the signals via one cost effective Cat.X cable. The receiving unit is responsible for equalizing the transmitted HDMI signal and reconstructing IR signals. The transmission distance between the sending and receiving units can be up to 60m (200ft) at HD 720p or 1080i; or 40m (130ft) at Full HD 1080p. With an 8-level equalization rotary control on the receiving unit, users can adjust the equalization strength to the received

HDMI signals accordingly, and therefore optimize the transmission distance between source and destination.

- Support HDMI Deep Color & full 3D
- Extend the transmission up to 60m (200ft) from the HDMI source at HD 1080i or 720p 24-bit
- Extend the transmission up to 40m (130ft) from the HDMI source at Full HD 1080p 24-bit
- Extend the transmission up to 20m (65ft) from the HDMI source at Full HD 1080p 36-bit
- HDCP 1.1 compliant
- Minimize the cable skew by adjustable 8-level equalization control
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.X cable transmission
- DTS-HD and Dolby True HD high bit rate audio support
- Support full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path
- Allows cascading
- Wall mounting housing design for easy and robust installation
- Perfectly integrated with other HDMI over Cat.X 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.

1.3 Package Contents

Before you start the installation of the switch, please check the package contents.

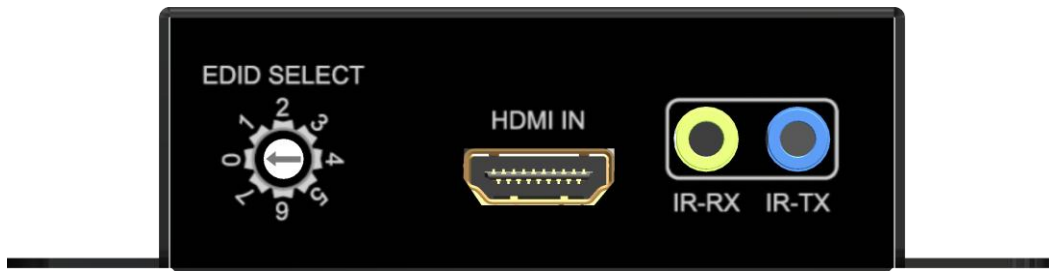
- | | |
|---------------------------------|----|
| — PT-E-HD10 [TX & RX] | x1 |
| — Power supply unit (+5VDC, 2A) | x2 |
| — User's Guide | x1 |
| — IR Blaster | x1 |
| — IR Receiver | x1 |

1.4 Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power supply unit with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the cable. It can cause malfunction.

1.5 Panel Descriptions

FRONT PANEL — PT-E-HD10, transmitting unit (TX)



MODE:

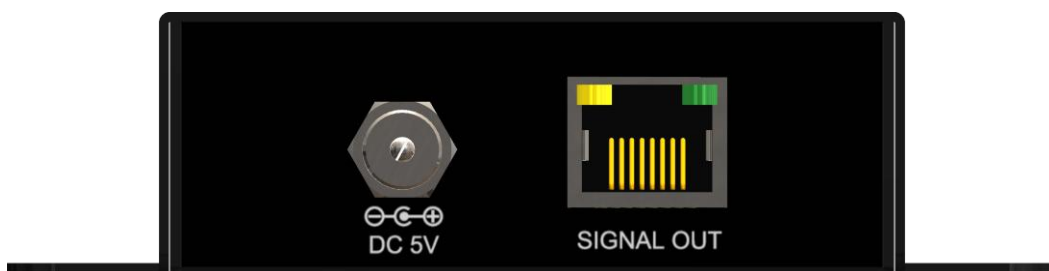
- 0 - EDID Full-HD(1080p@60) - 24bit 2D video & 7.1ch audio
- 1 - EDID Full-HD(1080p@60) - 24bit 2D video & 2ch audio
- 2 - EDID Full-HD(1080p@60) - 36bit 2D video & 7.1ch audio
- 3 - EDID Full-HD(1080p@60) - 36bit 2D video & 2ch audio
- 4 - EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 7.1ch audio
- 5 - EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 2ch audio
- 6 - EDID Full-HD(1080p@60) - 36bit 3D video & 2ch audio
- 7 - EDID learning mode

HDMI IN: Connects to a HDMI source with a HDMI male-male cable

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

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

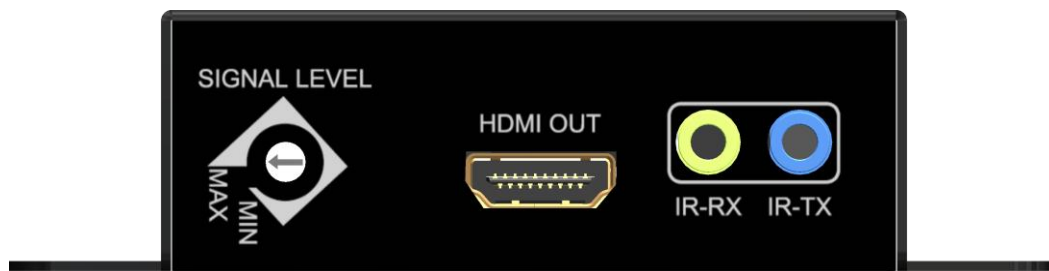
REAR PANEL — PT-E-HD10, transmitting unit (TX)



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

HDMI SIGNAL OUT: Plug in a Cat.X cable and link to the RJ-45 port of the PT-E-HD10, receiving unit [RX].

FRONT PANEL — PT-E-HD10, receiving unit (RX)



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

SIGNAL LEVEL: Adjust the equalization control to the received HDMI signals. The HDMI signal level varies from MAX (strongest) to MIN (weakest) for respective transmission length from longest possible range to short distance. Please adjust the signal level from MIN to MAX and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!

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

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

REAR PANEL — PT-E-HD10, receiving unit (RX)



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

HDMI SIGNAL IN: Plug in a Cat.X cable and link to the RJ-45 port of the PT-E-HD10, transmitting unit [TX].

1.6 IR Pass-through

IR Extenders

IR Blaster



IR Receiver



IR Sockets

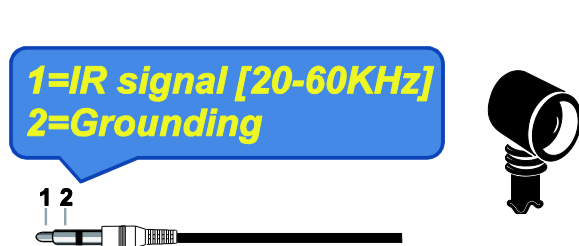
IR Blaster: Plug in the IR blaster here to emit all IR command signals received from the IR receiver to control the HDMI source devices.

IR Receiver: Plug in the IR receiver here to receive all IR command signals from the IR remote controls of the HDMI source devices.

Wrongly insert IR blaster and IR receiver to wrong 3.5mm infrared sockets may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets.

Definition of IR Earphone Jack

IR Blaster



IR Receiver



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.

1.7 Installation

1. Connect a HDMI or DVI source (such as a Blu-ray Disc player) to the transmitting unit PT-E-HD10-TX
2. Connect a HDMI or DVI display (such as a LCD TV) to the receiving unit PT-E-HD10-RX.
3. Connect IR Blaster/Receiver to both TX and RX units.
4. Connect a Cat-5/5e/6 cable between the transmitting and receiving units.
5. Make sure this Cat-5/5e/6 cable is tightly connected and not loose.
6. Plug in 5V DC power supply unit to the power jack of the receiving unit PT-E-HD10-RX.
7. Plug in 5V DC power supply unit to the power jack of the transmitting unit PT-E-HD10-TX.
8. If you see flickering or blinking image on the display, please adjust the rotary control switch to improve the cable skew. MAX stands for the strongest HDMI signal level for longest possible transmission length while MIN stands for the weakest HDMI signal level for short transmission length. Please adjust the signal level from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!

1.8 EDID Learning

1. Turn on to the transmitting unit (TX) of PT-E-HD10.
2. Set the MODE rotary switch on the transmitting unit to 7.
3. Use a HDMI cable to connect the transmitting unit (TX) of PT-E-HD10 and the display. The LED on the RJ-45 port of the transmitting unit (TX) of PT-E-HD10 will dim and light again, which indicates the EDID learning process is finished.
4. Unplug everything and resume the steps in [Installation].

Section 2: Specifications

Item	Description	
Units	Transmitting unit of PT-E-HD10	Receiving unit of PT-E-HD10
Unit Description	Transmitter	Receiver
HDMI Compliance	HDMI Deep Color & full 3D	
HDCP Compliance	Yes	
Video Bandwidth	Single-link 225MHz [6.75Gbps]	
Supported Resolutions	480i / 480p / 720p / 1080i / 1080p60	
Resolution and Distance (8-bit)	Full HD: (1080p) ~40meter (130feet) (CAT5e) / 50meter (165feet) (CAT6) HD: (720p/1080i) ~50meter (165feet) (CAT5e) / 60meter (200feet) (CAT6)	
Audio Support	Surround Sound (up to 7.1 Ch) or Stereo Digital Audio	
Equalization	None	8 Level Digital Control
Input TMDS Signal	1.2 Volts (peak-to-peak)	
Input DDC Signal	5 Volts (peak-to-peak, TTL)	
ESD Protection	– Human body model – ±19kV (air-gap discharge) & ±12kV (contact discharge) – Core chipset – ±8kV	
Input	1 x HDMI 1x 3.5mm	1 x RJ45 1x 3.5mm
Output	1 x RJ45 1x 3.5mm	1 x HDMI 1x 3.5mm
HDMI Connector	Type A (19 pin female)	
RJ45 Connector	WE/SS 8P8C with 2 LED indicators	
3.5mm Connector	IR blaster IR receiver	IR blaster IR receiver
Rotary Switch	None	Signal level equalization
Dimensions	75 x 90 x 25mm (L x W x H)	
Weight	480g	
Power Supply	5V 2A DC	
Power Consumption	3 Watt (max)	

Environmental

Operating Temperature	32° ~ 104°F (0° to 40°C)
Storage Temperature	-4° ~ 140°F (-20° ~ 60°C)
Relative Humidity	20~90% RH (no condensation)

Section 3: Notice

1. When adjusting the signal level on the receiver unit, please dial the rotary control switch from MIN to MAX and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
2. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI or HDMI display EDID information.
3. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C.
4. 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 [1,000ft] bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
5. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.
6. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
7. Because the quality of the CAT5/6 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-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
8. 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.

Section 4: Performance Guide

Performance rating		Type of CAT5/6 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		

