



EXC-4KP50-EA-KIT

18Gbps HDMI™ eARC/SPDIF over Cat Extender
with Bi-directional IR (70m)

User Manual



Thank you for purchasing this incredible product

For best performance and safety, please read these instructions carefully before connecting and operating this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, power surges, electrostatic discharge (ESD), lightning strikes or transients. The use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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1. Introduction

This This 4K60 HDMI™ Extender delivers zero-delay transmission of HDMI™ video and bi-directional IR control signals up to 50 m (164 ft) over a single CAT6/6a cable. It supports resolutions up to 4K@60Hz and provides both HDMI™ eARC and SPDIF audio pass-through. CEC pass-through is also supported between the eARC input and output to ensure proper eARC handshake communication.

For TVs that do not support HDMI™ eARC, the extender includes an independent SPDIF audio path. In this mode, digital audio can be sent from the SPDIF IN port on the RX to the SPDIF OUT port on the TX.

2. Features

- Video resolution up to 4K2K@60Hz, 4:4:4, 24-bit
- Video bandwidth of 18Gbps
- Supports HDR, HDR10, HDR10+, Dolby Vision, and HLG
- Transmission distance up to 50 m / 164 ft over CAT6/6a cable
- Audio support up to LPCM 7.1CH, Dolby TrueHD, and DTS-HD Master Audio
- eARC and ARC/SPDIF audio return:
 - eARC: PCM 7.1 192 kHz, Dolby Atmos, DTS:X
 - ARC/SPDIF: PCM 2.0, Dolby 5.1CH, DTS 5.1CH
- Supports CEC pass-through and bi-directional IR pass-through
- Advanced EDID management
- Compliant with HDCP 2.2

3. Package Contents

- ① 1× 18Gbps HDMI Extender balun (Transmitter)
- ② 1× 18Gbps HDMI Extender balun (Receiver)
- ③ 1× IR Blaster Cable (1.5m)
- ④ 1× IR Wideband Receiver Cable (1.5m)
- ⑤ 2× 5V/2A Multinational Power Supply
- ⑥ 4× Mounting Ear
- ⑦ 8× Machine Screws (KM3*4)
- ⑧ 1× User Manual

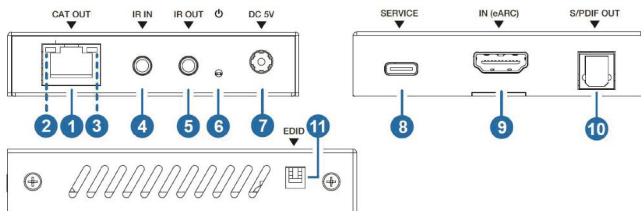
4. Specifications

Technical	
HDMI™ Compliance	HDMI™ 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution (Input & Output)	480i60, 576i50, 480p60, 576p50, 720p50/60, 1080i50/60, 1080p24/25/30/50/60, 4K2K 24/25/30, 4K2K50/60 4:2:0, 4K2K50/60 4:4:4; 640x480@60, 1024x768@60, 1280x768@60, 1280x800@60, 1280x1024@60, 1360x768@60, 1440x900@60, 1680x1050@60, 1920x1200@60RB
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YUV 4:2:0
Color Depth	8/10/12-bit
Audio Formats	HDMI™ eARC Audio: PCM 7.1CH 192KHz, Dolby Atmos, DTS:X ARC/SPDIF Audio: PCM 2.0, Dolby 5.1CH, DTS 5.1CH
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
CEC	Supported
IR Level	5Vp-p
IR Frequency	Wideband 20K-60KHz
Transmission Distance	50m/164ft for 4K2K@60Hz over CAT6/6a cable
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1× IN (eARC) [HDMI™ Type A, 19-pin female] Output: 1× S/PDIF OUT [S/PDIF] 1× CAT OUT [RJ45] Control: 1× SERVICE [USB-C, upgrade port] 1× IR IN [3.5mm audio jack] 1× IR OUT [3.5mm audio jack]
Receiver	Input: 1× S/PDIF IN [S/PDIF] 1× CAT IN [RJ45] Output: 1× OUT (eARC) [HDMI™ Type A, 19-pin female] Control: 1× SERVICE [USB-C, upgrade port] 1× IR IN [3.5mm audio jack] 1× IR OUT [3.5mm audio jack]

Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter / Receiver: 97mm [W] × 82mm [D] × 18mm [H]
Weight	Transmitter: 199g; Receiver: 196g
Power Supply	DC 5V/2A
Power Consumption	Transmitter: 4.75W (Max); Receiver: 3.5W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Operating Humidity	20%~80% relative humidity, non-condensing
Storage Humidity	10%~90% relative humidity, non-condensing

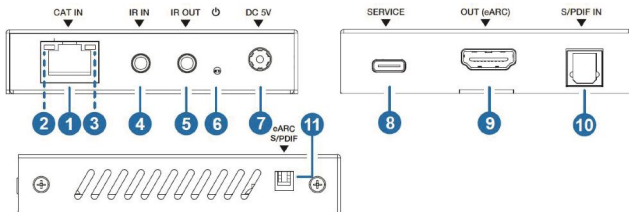
5. Operation Controls and Functions

5.1 Transmitter Module



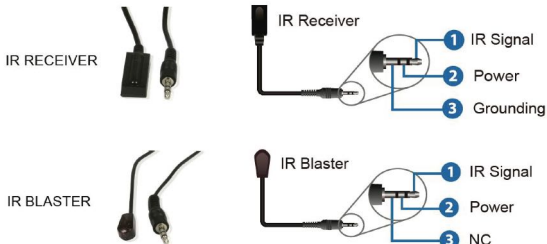
No.	Name	Function Description
1	CAT OUT	Connects to the CAT IN port on Receiver with CAT cable.
2	Link Status Indicator (Green)	- Light on: Transmitter and Receiver are connected normally. - Light off: Transmitter and Receiver are not connected.
3	Signal Indicator (Yellow)	- Light on: There is HDMI signal with HDCP. - Light flashing: There is HDMI signal without HDCP. - Light off: There is no HDMI signal.
4	IR IN	IR signal input port, connected to 5V IR wideband receiver.
5	IR OUT	IR signal output port, connected to 5V IR blaster.
6	Power LED	The green LED will be on when Transmitter is powered on.
7	DC 5V	DC 5V/2A power input port.
8	SERVICE	USB-C port, used for firmware upgrade.
9	IN (eARC)	HDMI signal input port, connected to source device such as DVD or PC with HDMI cable.
10	S/PDIF OUT	Optical audio output port, connected to an amplifier if needed.
11	EDID DIP switch	Used for EDID setting. Up is 1 and down is 0. [DIP]=11: Copy display/sink EDID from RX HDMI output (factory default) [DIP]=10: 4K60, 2.0CH [DIP]=01: 4K60, 5.1CH [DIP]=00: Copy display/sink video from RX HDMI output and audio from TX S/PDIF OUT.

5.2 Receiver Module



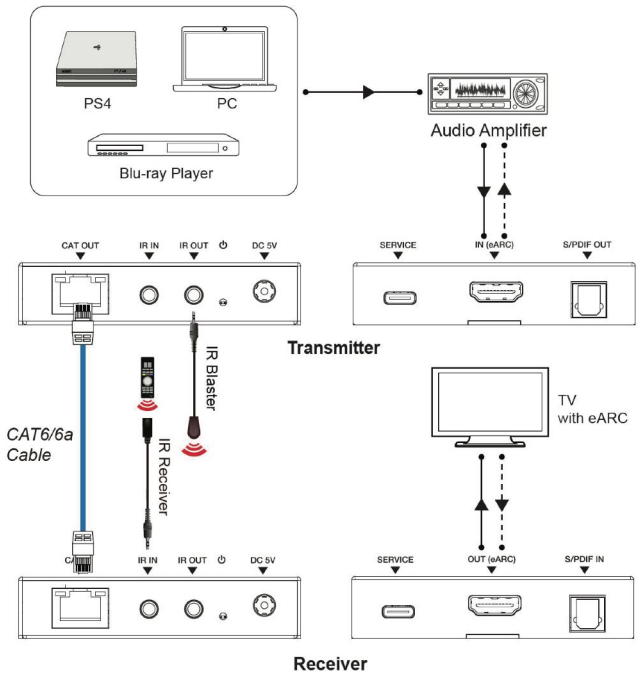
No.	Name	Function Description
1	CAT IN	Connects to the CAT OUT port on Transmitter with CAT cable.
2	Link Status Indicator (Green)	- Light on: Transmitter and Receiver are connected normally. - Light off: Transmitter and Receiver are not connected.
3	Signal Indicator (Yellow)	- Light on: There is HDMI signal with HDCP. - Light flashing: There is HDMI signal without HDCP. - Light off: There is no HDMI signal.
4	IR IN	IR signal input port, connected to 5V IR wideband receiver.
5	IR OUT	IR signal output port, connected to 5V IR blaster.
6	Power LED	The green LED will be on when Receiver is powered on.
7	DC 5V	DC 5V/2A power input port.
8	SERVICE	USB-C port, used for firmware upgrade.
9	OUT (eARC)	HDMI signal output port, connected to a TV with eARC function via HDMI cable.
10	S/PDIF IN	Optical audio input port. In S/PDIF mode, it is connected to the S/PDIF port on TV.
11	eARC S/PDIF dial switch	Used to select the two modes. Switch to x1: the eARC mode is enabled. Switch to x0: the S/PDIF mode is enabled. "x" is the first number, and it can be any of 0/1.

6. IR Pin out

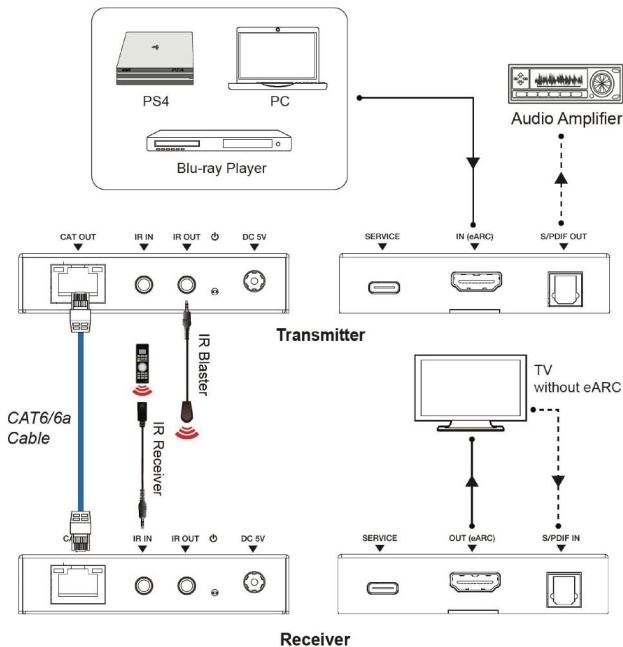


7. Application Diagram

1. eARC Mode



2. S/PDIF Mode



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

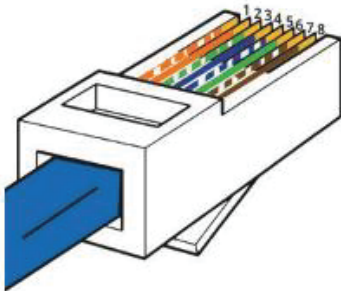
The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

8. CAT Cable Termination Diagram

For 4K signal distribution we recommend a suitable CAT6UTP solid 23AWG cable which should be terminated properly with the correct RG45 connectors according to TIA568B termination standard shown below. CCA Cable bandwidth is too low and will cause problems over distance.

RJ45 Pin-Out T568B

- | | |
|-----------------------|----------------------|
| 1.White Orange | 5.White Blue |
| 2.Orange | 6.Green |
| 3.White Green | 7.White Brown |
| 4.Blue | 8.Brown |



9. PhD Solutions Product Warrantee

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Repair the product with new or refurbished parts. or

Replace it with a new or refurbished product.

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PHD Solutions (“PHD Solutions”), Level 6, Capricorn Tower, Trade Center 2nd, Sheikh Zayed Road, Dubai, UAE warrants to the owner of the enclosed product that the product contained in this box (“Product”) will be free from defects in materials and workmanship for a period of two years from the date of delivery following the original purchase (the “Warranty Period”), or if this product has been professionally installed, the warranty start date is from the date your installer purchased the item, not your system commissioning date. Please check with your installer for their purchase date. If the Product fails to conform to this Limited Warranty during the Warranty Period, PHD Solutions will, at its sole discretion, either (a) repair or replace any defective Product or component; or (b) accept the return of the Product and refund the money actually paid by the original purchaser for the Product. Repair or replacement may be made with a new or refurbished product or components, at PHD Solutions’ sole discretion. If the Product or a component incorporated within it is no longer available, PHD Solutions may replace the Product with a similar product of similar function, at PHD Solutions’ sole discretion. This is your sole and exclusive remedy for breach of this Limited Warranty.

Any Product that has either been repaired or replaced under this Limited Warranty will be covered by the terms of this Limited Warranty for the longer of

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Before being able to claim under this Limited Warranty, the owner of the Product must (a) notify PHD Solutions of the intention to claim during the Warranty Period and providing a description of the alleged failure, and (b) comply with PHD Solutions' return shipping instructions, and (c) ship the Product at owner's cost (except where prohibited by applicable law) to PHD Solutions for repair or replacement. PHD Solutions will have no warranty obligations with respect to a returned Product if it determines, in its reasonable discretion after examination of the returned Product that the Product is an Ineligible Product (defined below). PHD Solutions will bear all costs of return shipping to owner, except with respect to any Ineligible Product, for which owner will bear all shipping costs.

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PHD Solutions recommends that you use only authorized service providers for maintenance or repair. Unauthorized use of the Product or software can impair the Product's performance and may invalidate this Limited Warranty. PHD

Solutions does not warrant that operation of the Product will be error-free or uninterrupted or that the Product will in every case process all data correctly.

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