

# LINK



## LINK EXT40-4KECO 4K 40m HDMI Extender

# User Manual

Version: V1.0.1



# Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



6. Clean this apparatus only with dry cloth.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and/or similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

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# Introduction

## Overview

LINK EXT40-4KECO is a slim 4K HDMI extender set. It supports resolution up to 4K@30Hz 4:4:4 8bit, transporting Ultra HD video with 3D compatibility, multi-channel audio, bi-directional IR up to 40m / 131ft over a single CATX cable.

EXT40-4KECO supports bi-directional IR pass through, enabling users to control the source at the display location or control the display at the source location with ease. Auto detection ensures the optimum quality for video/audio is transmitted.

The transmitter and receiver are easy to install. They are space saving and offer ideal solutions for homes, offices, digital entertainment centers, control centers, conference rooms, schools and corporate training environments, where the extension of HDMI signals over long distances is required.

# Features

- Supports resolution up to 4K@30Hz 4:4:4 8bit
- HDMI signal transport up to 40m / 131ft along a CATX cable
- Support HDMI 1.4b and HDCP 1.4
- Bi-directional IR pass through
- Auto equalization built-in for optimal signal transmission
- Built-in ESD:  $\pm 8\text{kV}$  (air-gap discharge) &  $\pm 4\text{kV}$  (contact discharge)
- Slim profile, cost-effective and easy-to-install

# Package Contents

- 1 x Transmitter
- 1 x Receiver
- 2 x Power Supply (DC 5V 1A)
- 2 x IR Emitter
- 2 x Broadband IR Receiver (30-50 KHz)
- 1 x IR-AC IR Coupler Cable
- 4 x Mounting Bracket

# Specification

## Transmitter

| Technical                         |  |
|-----------------------------------|--|
| Input                             | 1 x HDMI   |
| Input Signal Type                 | HDMI 1.4b with 3D; HDCP 1.4  |
| Input / Output Resolution Support | <p>SMPTE:<br/>           1280x720P<sup>1,2,3,4,5,6,7,8</sup>, 1920x1080i<sup>6,8</sup>,<br/>           1920x1080P<sup>1,2,3,4,5,6,7,8</sup>, 3840x2160<sup>2,3,5</sup>,<br/>           4096x2160<sup>2,3,5</sup></p> <p>VESA:<br/>           800x600<sup>8</sup>, 1024x768<sup>8</sup>, 1280x768<sup>8</sup>, 1280x800<sup>8</sup>,<br/>           1280x960<sup>8</sup>, 1280x1024<sup>8</sup>, 1360x768<sup>8</sup>,<br/>           1366x768<sup>8</sup>, 1400x1050<sup>8</sup>, 1440x900<sup>8</sup>,<br/>           1600x900<sup>8</sup>, 1600x1200<sup>8</sup>, 1680x1050<sup>8</sup>,<br/>           1920x1200<sup>8</sup></p> <p>1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz</p> |
| Input Video Level                 | 0.5-1.2 Vp-p   |
| Input DDC Signal                  | 5 volts p-p (TTL)  |
| Video Impedance                   | 100ohms  |
| Output                            | 1 x UTP  |
| Output Signal Type                | UTP: IEEE-568B   |
| Maximum Pixel Clock               | 340MHz   |

| <b>Technical</b>          |   |
|---------------------------|---|
| Transmission Distance     | HDMI:<br>1080P:15m / 49ft ; 4K@30Hz: 10m / 33ft<br>Cat 6a/7: 40m / 131ft<br>Cat 5e/6: 35m / 115ft |
| Control Method            | 1x IR TX, 1x IR RX  |
| IR Wavelength & Frequency | Wavelength: 940nm<br>Frequency: 38KHz   |

| <b>General</b>                  |   |
|---------------------------------|---|
| Operating Temperature           | 0°C to 45°C (32°F to 113°F),<br>10% to 90%, non-condensing  |
| Storage Temperature             | -20°C to 70°C (-4°F to 158°F)<br>10% to 90%, non-condensing |
| Humidity                        | 10% to 90%, non-condensing                                  |
| Power Supply                    | DC 5V 1A  |
| Power Consumption (Max)         | 2.8W  |
| Device Dimension<br>(W x H x D) | 80mm x 25mm x 90.2mm<br>/ 3.15" x 0.98" x 3.55"             |
| Product Weight                  | 0.3kg / 0.66lb  |
| Certification                   | CE, FCC   |



# Receiver

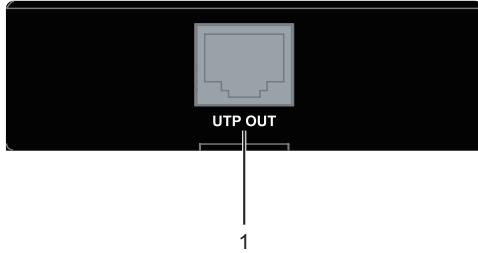
| Technical                         |  |
|-----------------------------------|--|
| Input                             | 1 x UTP  |
| Input Signal Type                 | UTP: IEEE-568B   |
| Input / Output Resolution Support | <p>SMPTE:<br/>           1280x720P<sup>1,2,3,4,5,6,7,8</sup>, 1920x1080I<sup>6,8</sup>,<br/>           1920x1080P<sup>1,2,3,4,5,6,7,8</sup>, 3840x2160<sup>2,3,5</sup>,<br/>           4096x2160<sup>2,3,5</sup></p> <p>VESA:<br/>           800x600<sup>8</sup>, 1024x768<sup>8</sup>, 1280x768<sup>8</sup>, 1280x800<sup>8</sup>,<br/>           1280x960<sup>8</sup>, 1280x1024<sup>8</sup>, 1360x768<sup>8</sup>,<br/>           1366x768<sup>8</sup>, 1400x1050<sup>8</sup>, 1440x900<sup>8</sup>,<br/>           1600x900<sup>8</sup>, 1600x1200<sup>8</sup>, 1680x1050<sup>8</sup>,<br/>           1920x1200<sup>8</sup></p> <p>1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz</p> |
| Video Impedance                   | 100ohms  |
| Output                            | 1 x HDMI   |
| Output Signal Type                | HDMI 1.4b with 3D; HDCP 1.4  |
| Maximum Pixel Clock               | 340MHz   |
| Transmission Distance             | HDMI: 15m / 49ft<br>Cat 6a/7: 40m / 131ft<br>Cat 5e/6: 35m / 115ft   |
| Control Method                    | 1x IR TX, 1x IR RX   |

| <b>General</b>                  |   |
|---------------------------------|---|
| Operating Temperature           | 0°C to 45°C (32°F to 113°F),<br>10% to 90%, non-condensing  |
| Storage Temperature             | -20°C to 70°C (-4°F to 158°F)<br>10% to 90%, non-condensing |
| Humidity                        | 10% to 90%, non-condensing                                  |
| Power Supply                    | DC 5V 1A  |
| Power Consumption (Max)         | 3.4W  |
| Device Dimension<br>(W x H x D) | 80mm x 25mm x 90.2mm<br>/ 3.15" x 0.98" x 3.55"             |
| Product Weight                  | 0.3kg / 0.66lb  |
| Certification                   | CE, FCC   |

# Panel Layout

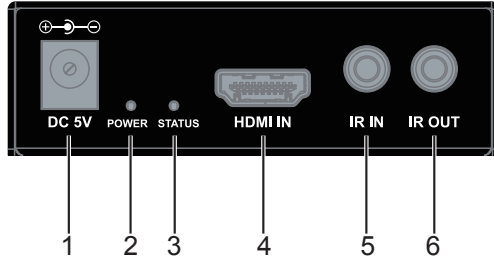
## Transmitter

### Front Panel



| No. | Name    | Description                                 |
|-----|---------|---|
| 1   | UTP OUT | Connect to the UTP IN port of the receiver. |

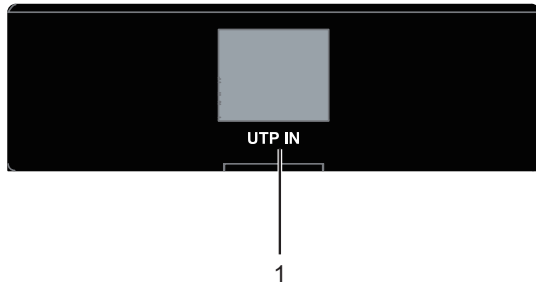
## Rear Panel



| No. | Name                 | Description  |
|-----|----------------------|--|
| 1   | DC 5V                | DC 5V power input  |
| 2   | Power LED<br>(Red)   | <b>ON:</b> The transmitter is powered on.<br><b>OFF:</b> The transmitter is powered off.   |
| 3   | Status LED<br>(Blue) | <b>ON:</b> HDMI signals are being transmitted.<br><b>OFF:</b> No HDMI signal transmission. |
| 4   | HDMI IN              | Connect to an HDMI source.   |
| 5   | IR IN                | Connect to an IR receiver.   |
| 6   | IR OUT               | Connect to an IR emitter.  |

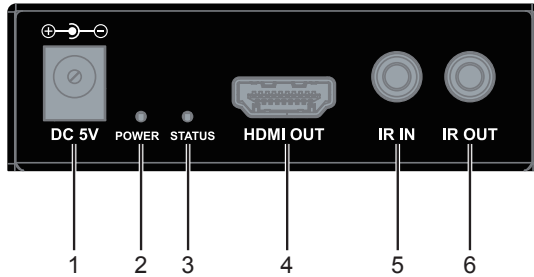
## Receiver

### Front Panel



| No. | Name   | Description                                     |
|-----|--------|---|
| 1   | UTP IN | Connect to the UTP OUT port of the transmitter. |

## Rear Panel



| No. | Name                 | Description  |
|-----|----------------------|--|
| 1   | DC 5V                | DC 5V power input  |
| 2   | POWER LED<br>(Red)   | <b>ON:</b> The receiver is powered on.<br><b>OFF:</b> The receiver is powered off.         |
| 3   | STATUS LED<br>(Blue) | <b>ON:</b> HDMI signals are being transmitted.<br><b>OFF:</b> No HDMI signal transmission. |
| 4   | HDMI OUT             | Connect to an HDMI display.  |
| 5   | IR IN                | Connect to an IR receiver.   |
| 6   | IR OUT               | Connect to an IR emitter.  |

# Installation and Instructions

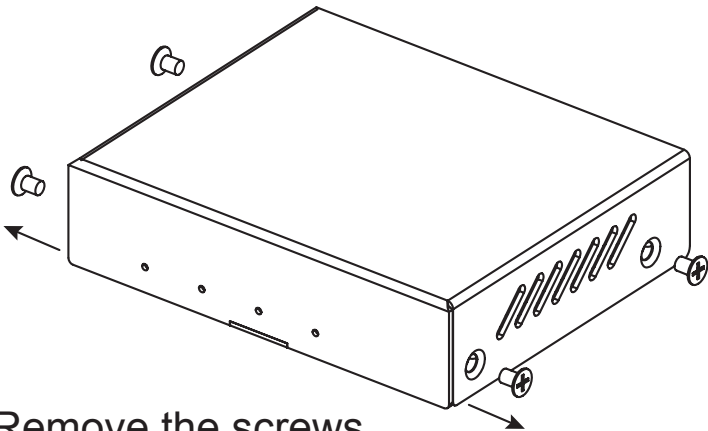
## Brackets Installation

**Note:** Before installation, please ensure the device is disconnected from the power source.

In order to keep an elegant appearance, we designed the screws to pull double duty with the product chassis and rack mount ears, please refer to the below steps to install.

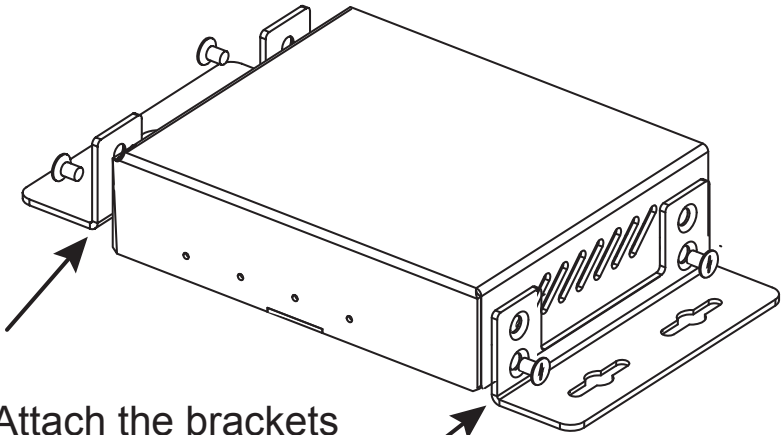
### Steps to install the device in a suitable location:

1. Remove the four screws that secure the side panels to the transmitter.



- 1** Remove the screws from the side panels

2. Position and install the mounting brackets with the four mounting screws mentioned above.



**2** Attach the brackets provided to the side panels of the device

3. Mount and secure the transmitter to a surface or a suitable location with the mounting screws.

4. Repeat steps 1, 2 and 3 to install the receiver.

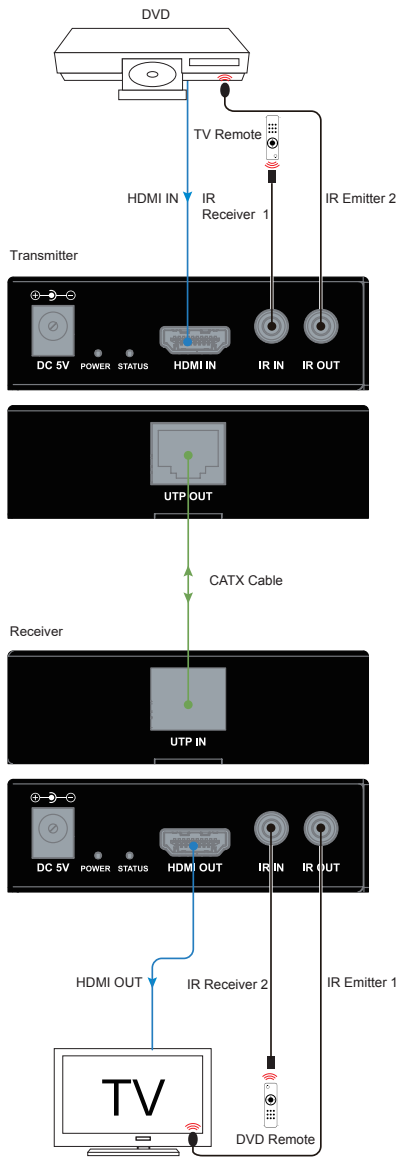


# Wiring

**Warning:** Before wiring, disconnect the power from all devices.

During wiring, connect and disconnect the cable gently.

1. Connect an HDMI source (such as Blu-ray player, games console, STB, Apple TV etc.) to the HDMI IN port of Transmitter via an HDMI cable.
2. Connect the Transmitter to the Receiver via a CATX cable on the UTP ports.
3. Connect an HDMI display to the HDMI OUT port of the Receiver.
4. Connect the IR emitter and IR receiver to the Transmitter and the Receiver respectively. Users can control the source at the display location or control the display at the source location as required, please refer to the diagrams in **IR Pass Through** Section.
5. Connect the power supplies to the Transmitter and the Receiver respectively. Check if the power and status LEDs light steadily on both units to indicate successful connection.

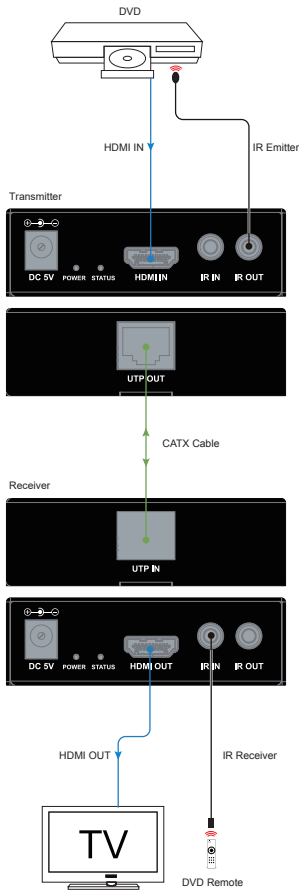


# IR Pass Through

IR pass-through function allows users to control the source at the display location or control the display at the source location.

## 1. Control the source

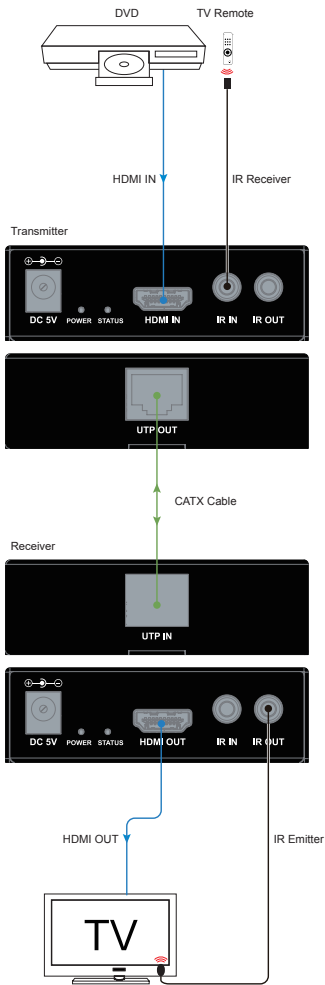
Connect an IR emitter to the IR OUT port of the Transmitter and a broadband IR receiver to the IR IN port of the Receiver. Users can control the source at the display location with the source remote.



Control the source at the display location

## 2. Control the display

Connect a broadband IR receiver to the IR IN port of the Transmitter and an IR emitter to the IR OUT port of Receiver. Users can control the display at the source location with the display remote.



Control the display at the source location

# Trouble Shooting

## Troubleshooting Steps

1. **Power:** Please make sure all devices are powered on (the source, extender set and display).
2. **Indicator:** Please make sure LED indicators of the transmitter and receiver are normal according to user manual.
3. **Devices:** Please make sure picture can be shown normally when connecting source to display devices directly.
4. **Cable:** Unplug and plug in HDMI / CatX cable or try another HDMI / CatX cable.
  - Please make sure the specific cable length is within the transmission range listed in below table based on different resolutions.

| Resolution and Transmission Range |       |           |
|-----------------------------------|-------|-----------|
| Resolution<br>Cable               | 1080P | 4K@30 444 |
| HDMI IN                           | 15m   | 10m       |
| HDMI OUT                          | 15m   | 15m       |
| Cat 5e / 6                        | 35m   | 35m       |
| Cat 6a / 7                        | 40m   | 40m       |

- Cat 5e/6/6a/7 cable is recommended, do not use Cat 5 cable. Please make sure the two connectors of one Cat X cable are the same standard (EIA/TIA 568B).
5. **Compatibility:** Please test other source and display devices to determine if it is a compatibility issue.

# Warranty Terms and Conditions

For the following cases LINK shall charge for the service(s) claimed for the products if the product is still remediable and the warranty card becomes unenforceable or inapplicable.

1. The original serial number (specified by LINK) labeled on the product has been removed, erased, replaced, defaced or is illegible.
2. The warranty has expired.
3. The defects are caused by the fact that the product is repaired, dismantled or altered by anyone that is not from a LINK authorized service partner. The defects are caused by the fact that the product is used or handled improperly, roughly or not as instructed in the applicable User Guide.
4. The defects are caused by any force majeure including but not limited to accidents, fire, earthquake, lightning, tsunami and war.
5. The service, configuration and gifts promised by salesman only but not covered by normal contract.
6. LINK preserves the right for interpretation of these cases above and to make changes to them at any time without notice.

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