

## HD50-4K-BALUN

4K/18Gbps HDMI Extender Kit with one-way IR (50M)



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Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting 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, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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## Introduction

This HDMI Extender Kit can extend high definition video / audio signals and one-way IR, distances up to 164ft /50 meters between the transmitter and receiver over a single Cat5e/6 cable. The HD50-4K-Balun supports resolution up to 4K2K@60Hz 4:4:4, 18Gbps and HDCP 2.2. In addition, the extender is equipped with one-way IR pass-through which allows for source control and one HDMI loop output.

The HD50-4K-Balun extender kit includes transmitter and receiver units. The transmitter unit connects to the HDMI input signal and carries the signal over Cat5/6 cable .The receiver connects to the display HDMI input and also transmits IR control signals.

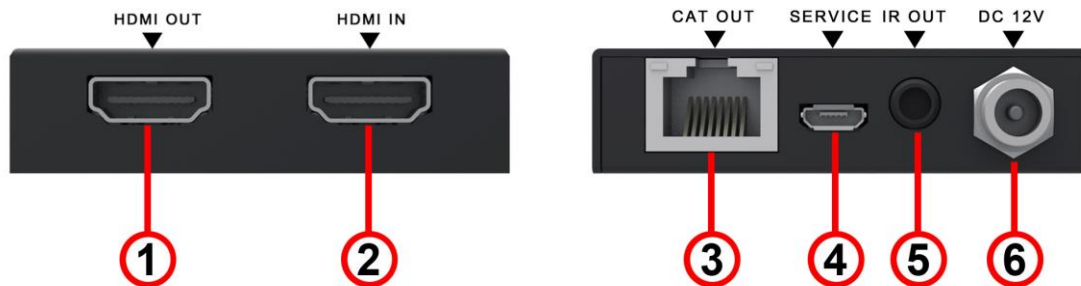
The extender kit offers the most convenient solution for HDMI extension over a single Cat5e/6 with long distance capability, and is the perfect solution for any HDMI extender application.

## Features

- HDMI 2.0, HDCP 2.2 / HDCP 1.4 and DVI 1.0 compliant.
- Supports 18Gbps bandwidth.
- Supports input and output video resolution up to 4k2k@60Hz 4:4:4, extends distance up to 164ft / 50 meters.
- Supports one HDMI loop output.
- Supports one-way IR pass-through.
- Supports HDR function.
- Supports PoC (Power over Cable) function, where one 12VDC-1A power adapter, can be located at the TX or RX balun to power the balun system.)
- Supports automatic copy EDID functions.
- Compact design for easy and flexible installation.

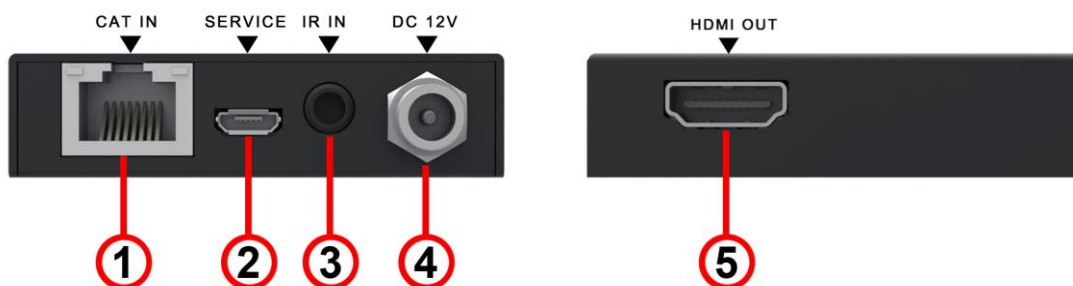
## Panel Descriptions

### TX (transmitter) Balun



1. HDMI Output – HDMI loop output port connects to any HDMI display device such as a TV or Projector using an HDMI cable.
2. HDMI Input – Connect to any HDMI source device such as a DVD, computer or gaming player using an HDMI cable.
3. CAT Output – RJ45 connector, connect to CAT IN port on the receiver unit with Cat6 cable.
4. Service port – Used for possible firmware upgrades
5. IR Out port – 3.5mm mono phone jack, connects to the included IR emitter cable.
6. Power port – Use included 12V/1A DC power adapter to power the unit.

### RX (receive) Balun



1. HDMI Output – Connect to any HDMI display device such as a TV or a Projector using an HDMI cable
2. CAT IN – Connect to CAT OUT port on the Transmitter unit with a Cat6 cable
3. Service port – Used for possible firmware upgrades
4. IR IN – 3.5mm stereo phone jack, connect to the included IR sensor cable.
5. Power port – Used the included 12V/1A DC power adapter to power the unit.

## IR TX/RX Guidelines



**IR Emitter**



**IR Receiver**

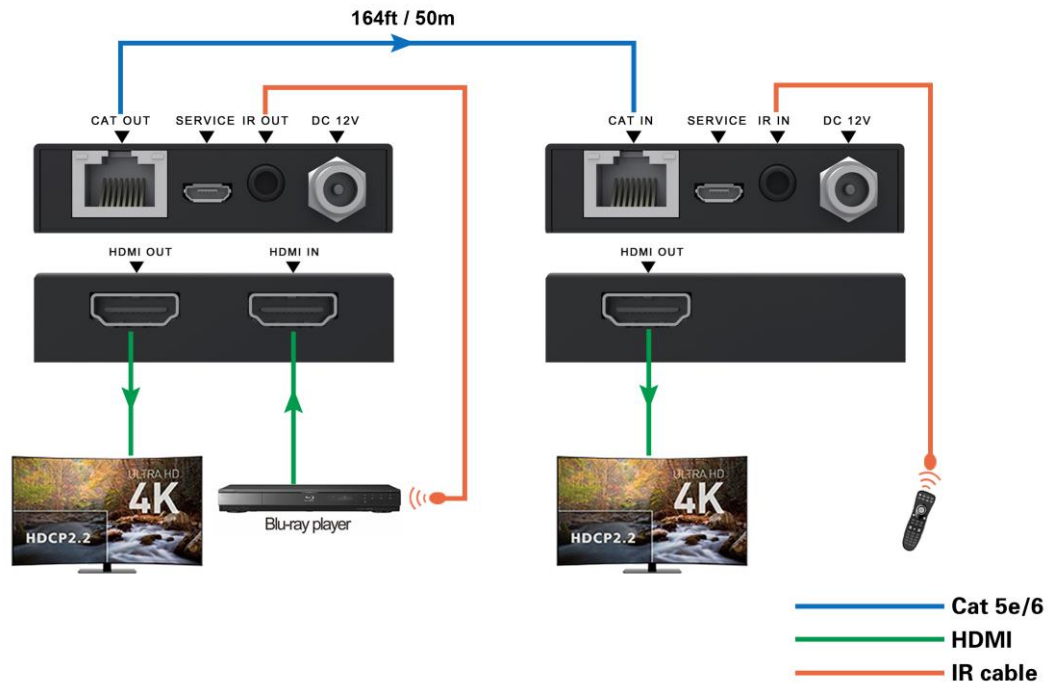
**IR Emitter:** Plug in the IR emitter to emit all IR command signals received from the IR receiver from the other end to control the source devices connected to the HD50-4K-Balun.

**IR Receiver:** Plug in the IR receiver to receiver all IR command signals from the IR remote controls connected to the HD50-4K-Balun.

## IR Pin Definition



## Application Diagram



## Specifications

| Technical          |  |
|--------------------|--|
| HDMI Compliance    | HDMI 2.0   |
| HDCP Compliance    | HDCP 2.2 / HDCP 1.4  |
| Video Bandwidth    | 18Gbps   |
| Video Resolution   | Up to 4K60Hz 4:4:4   |
| Color Space        | RGB / YCbCr 4:4:4, YCbCr 4:2:2/4:2:0, YUV 4:4:4  |
| Color Depth        | 8/10/12-bit (1080P60Hz, 4K30Hz, 4K60Hz YCbCr 4:2:2/4:2:0)<br>8-bit (4K60Hz 4:4:4 )                                       |
| HDMI Audio Formats | LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus(DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X |
| ESD Protection     | Human body model — ±8kV (Air-gap discharge)<br>±4kV (Contact discharge)  |
| Connections        |  |
| Transmitter        | Inputs: 1x HDMI Type A [19-pin female]<br>1x SERVICE [Micro USB, Update port]  |

|   |   |                                     |
|---|---|-------------------------------------|
|   | Outputs: 1x HDMI Type A [19-pin female]<br>1x IR OUT [3.5mm Stereo Mini-jack]<br>1x CAT OUT [RJ45, 8-pin female]  |                                     |
| Receiver  | Inputs: 1x IR IN [3.5mm Stereo Mini-jack]<br>1x CAT IN [RJ45, 8-pin female]<br>1x SERVICE [Micro USB, Update port]<br>Outputs: 1x HDMI Type A [19-pin female] |                                     |
| <b>Mechanical</b>   |   |                                     |
| Housing   | Metal Enclosure   |                                     |
| Color   | Black   |                                     |
| Dimensions  | Transmitter / Receiver:<br>61mm [W] x 88mm [D] x 18mm [H]   |                                     |
| Weight  | Transmitter: 160g, Receiver: 155g   |                                     |
| Power Supply  | Input: AC 100 - 240V 50/60Hz<br>Output: DC 12V/1A   |                                     |
| Power Consumption   | 3.84 W  |                                     |
| Operating Temperature   | 32 - 104°F / 0 - 40°C   |                                     |
| Storage Temperature   | -4 - 140°F / -20 - 60°C   |                                     |
| Relative Humidity   | 20 - 90% RH (no condensation)   |                                     |
| <b>Resolution / Distance</b>                                      | <b>4K60 - Feet / Meters</b>   | <b>4K30 / 1080P - Feet / Meters</b> |
| CAT5e   | 164ft / 50M   | 164ft / 50M                         |
| CAT6/6a/7   | 197ft / 60M   | 230ft / 70M                         |
| HDMI IN/OUT   | 10ft / 3M   | 30ft / 10M                          |
| The use of "Premium High Speed HDMI" cable is highly recommended. |   |                                     |

**NOTE:** Specifications are subject to change without notice. Weight and dimensions are approximate.

## Package Contents

- 1) 1x TX (Transmitter)
- 2) 1x RX (Receiver)
- 3) 1x 12V/1A DC power supply
- 4) 1x IR Sensor
- 5) 1x IR Emitter
- 6) 4x Rack-mount Ears
- 7) 1x User Manual



## **Maintenance**

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

## **Warranty Policy**

Factor Electronics products are warranted against defects in material and workmanship for two years from the date of shipment. During the warranty period, Factor Electronics will, at its option, repair or replace products that prove to be defective. Repairs are warranted for the remainder of the original warranty or a 90 day extended warranty, whichever is longer.

For equipment under warranty, the owner is responsible for freight to Factor Electronics and all related customs, taxes, tariffs, insurance, etc. Factor Electronics is responsible for the freight charges only for return of the equipment from the factory to the owner. Factor Electronics will return the equipment by the same method (i.e., Air, Express, Surface) as the equipment was sent to Factor Electronics.

All equipment returned for warranty repair must have a valid RMA number issued prior to return and be marked clearly on the return packaging. Factor Electronics strongly recommends all equipment be returned in its original packaging.

Factor Electronics's obligations under this warranty are limited to repair or replacement of failed parts, and the return shipment to the buyer of the repaired or replaced parts.

## **Limitations of Warranty**

The warranty does not apply to any part of a product that has been installed, altered, repaired, or misused in any way that, in the opinion of Factor Electronics, would affect the reliability or detracts from the performance of any part of the product, or is damaged as the result of use in a way or with equipment that had not been previously approved by Factor Electronics.

The warranty does not apply to any product or parts thereof where the serial number or the serial number of any of its parts has been altered, defaced, or removed.

The warranty does not cover damage or loss incurred in transportation of the product.

The warranty does not cover replacement or repair necessitated by loss or damage from any cause beyond the control of Factor Electronics, such as lightning or other natural and weather related events or wartime environments.

The warranty does not cover any labor involved in the removal and or reinstallation of warranted equipment or parts on site, or any labor required to diagnose the necessity for repair or replacement.

The warranty excludes any responsibility by Factor Electronics for incidental or consequential damages arising from the use of the equipment or products, or for any inability to use them either separate from or in combination with any other equipment or products.

A fixed charge established for each product will be imposed for all equipment returned for warranty repair where Factor Electronics cannot identify the cause of the reported failure.

## **Exclusive Remedies**

Factor Electronics's warranty, as stated is in lieu of all other warranties, expressed, implied, or statutory, including those of merchantability and fitness for a particular purpose. The buyer shall pass on to any purchaser, lessee, or other user of Factor Electronics's products, the aforementioned warranty, and shall indemnify and hold harmless Factor Electronics from any claims or liability of such purchaser, lessee, or user based upon allegations that the buyer, its agents, or employees have made additional warranties or representations as to product preference or use.

The remedies provided herein are the buyer's sole and exclusive remedies. Factor Electronics shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal remedy.

## **RMA Policy**

When returning product to Factor Electronics for any reason, the customer should fill out the official RMA form to obtain a RMA number. Without the permission or approval, Factor Electronics will be no responsible for any return.

This can be initiated by emailing or calling your related sales person [www.info@factorelectronics.com](mailto:www.info@factorelectronics.com) PH:778-800-1918.

All requests are processed within 48 hours.

## **Standard Replacement**

For customers that agree to return defective product to Factor Electronics first, a Standard Replacement option is available.

An RMA number must first be issued by sales. This RMA number will need to be referenced on the outside of the return shipment.

Upon receipt of the defective product, Factor Electronics will, at its discretion, either repair or replace the product and ship it out in the most expeditious manner possible. Subject to availability, the replacement product will be shipped on the business day following receipt of the defective product.

In the event the product returned to Factor Electronics has been discontinued (i.e. the product is no longer being manufactured by Factor Electronics but is still under warranty), Factor Electronics will, at its discretion, either repair or replace with recertified product.

## **Once you have obtained an RMA number**

After obtaining an RMA number from Factor Electronics, you must send the product - freight prepaid - to Factor Electronics. The Factor Electronics RMA number must be prominently displayed on the outside of your package. If you send your product to Factor Electronics without the RMA number prominently displayed on the outside of the package, it will be returned to you unopened.

Please use a shipping company that can demonstrate proof of delivery. Factor Electronics does not accept responsibility for any lost shipments unless proof of delivery to Factor Electronics is provided.

## **Please note**

Product shipped to Factor Electronics must be properly packaged to prevent loss or damage in transit.

Shipping your RMA to Factor Electronics using regular mailing envelopes is not acceptable, as they do not protect the product from damage during shipping.

Factor Electronics will not repair or replace a module that is shipped in such a way that the product is not properly protected.

Factor Electronics will not accept any product that has been damaged as a result of accident, abuse, misuse, natural or personal disaster, or any unauthorized disassemble, repair or modification.