

# Gefen

®

## **HDKVM ELR extension for HDMI and USB Over One CAT5**



[www.gefen.com](http://www.gefen.com)



## ASKING FOR ASSISTANCE

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### Notice

Gefen, LLC reserves the right to make changes in the hardware, packaging, and any accompanying documentation without prior written notice.

**HDKVM ELR extension for HDMI and USB Over One CAT5**  
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# INTRODUCTION

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Congratulations on your purchase of the Gefen HDKVM Extender for HDMI and USB over One CAT-5. Your complete satisfaction is very important to us.

## **Gefen**

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to install and simple to operate.

## **The Gefen HDKVM ELR extension for HDMI and USB Over One CAT5**

The HDKVM ELR extends HDMI, KVM (keyboard, video, and mouse), and USB over a distance up to 330 feet (100 meters) using one CAT-5e cable. Hi-Def resolutions up to 1920 x 1200 and USB 2.0 are supported. The Receiver unit connects to an HDTV display using HDMI and also allows the connection of up to three USB devices, providing access to printers, scanners, cameras, external storage media, Digital Signage, and automated control systems. This product uses Gefen ELR (Extra Long Range) Technology based on HDBaseT®, allowing HDMI and USB signals to travel along the same CAT-5e cable, reducing cabling costs in addition to providing easier and more reliable installation.

## **How It Works**

Place the HDKVM ELR Sender unit next to the computer source and use the included locking HDMI cable to connect the computer to the Sender unit. Use the supplied USB cable to connect the USB host (source) device to the USB port on the Sender unit. Connect the Receiver unit to an HDTV display with another locking HDMI cable. Connect the USB devices to the Receiver unit. Use one CAT-5e cable, up to 330 feet (100 meter), to connect the Sender unit to the Receiver unit. Connect the included locking power supplies to the Sender and Receiver units and plug both power cords into available electrical outlets.

## OPERATION NOTES

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### PLEASE READ THESE NOTES BEFORE INSTALLING OR OPERATING THE HDKVM ELR EXTENSION FOR HDMI AND USB OVER ONE CAT5

- This product is 4K x 2K-compliant.
- Cat-5 or Cat-6 cables should not exceed 330 feet (100 meters).
- Shielded (STP) Cat-5 or Cat-6 is recommended. However, un-shielded (UTP) Cat-5 or Cat-6 is acceptable.



**NOTE:** The shielded cable has an advantage by providing immunity to Electromagnetic Interference (EMI), cell phones and A/C motors.

- The Gefen HDKVM ELR extension for HDMI and USB Over One CAT5 features the ability to generate compatible EDID and Hot Plug signals when working with different brands of source devices and monitors.
- This product supports HDCP with HDMI and DVI sources.
- Dual-link resolutions are not supported.

# FEATURES

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## HDMI Features Supported

- 4K x 2K-compliant
- Resolutions up to 1080p Full HD
- 12-bit Deep Color
- LPCM 7.1 audio, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD® Master Audio™
- 3DTV pass-through
- CEC pass-through
- Lip Sync pass-through

## Features

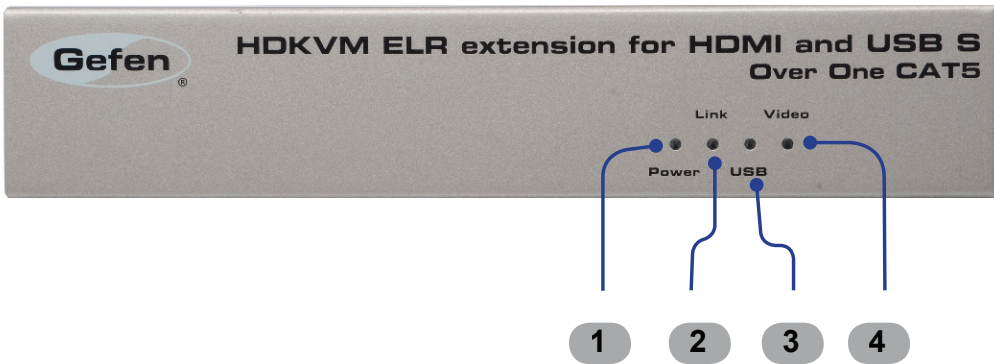
- Extends HDMI and USB up to 330 feet (100 meters) over one CAT-5 cable
- Supports 100 Mbps using USB 2.0
- Backward-compatible with USB 1.1
- EDID management for rapid integration of source and display devices
- Field-upgradeable via mini-USB port
- Supports any Operating System (OS)
- Uses HDBaseT® technology
- Locking power connectors
- Rack-mountable

## Package Includes

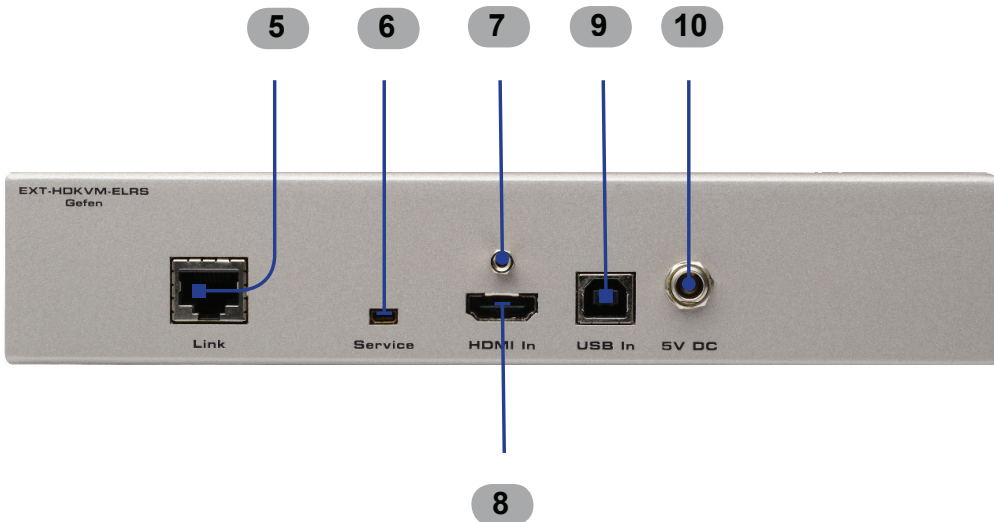
- (1) HDKVM ELR extension for HDMI and USB Over One CAT5 - Sender Unit
- (1) HDKVM ELR extension for HDMI and USB Over One CAT5 - Receiver Unit
- (1) 6 ft. Locking HDMI Cable (M-M)
- (1) 6 ft. USB cable (A-B)
- (2) 5V DC Locking Power Supplies
- (2) AC Power Cords
- (1) Quick-Start Guide

# SENDER UNIT LAYOUT

## Front



## Back





## SENDER UNIT DESCRIPTIONS

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### **1** *Power Indicator*

This LED indicator will glow bright blue once the included 5V DC locking power supply has been properly connected to the unit and the AC power cord has been plugged into an available electrical outlet.

### **2** *Link Indicator*

This LED indicator will flash bright blue on and off until the Sender and Receiver unit are connected using a CAT-5e cable.

### **3** *USB Indicator*

This LED indicator will glow bright blue when a USB source is connected.

### **4** *Video Indicator*

This LED will glow bright blue when the HDMI source is connected.

### **5** *Link*

Connects the Sender to the Receiver unit using a CAT-5e cable

### **6** *Service*

Mini-USB service port used for upgrading the firmware

### **7** *Locking Connector*

Used to lock the HDMI cable in place

### **8** *HDMI In*

Connect a Hi-Def source to this port using the included locking HDMI cable. Please see the **Features** section on **page 3** for **HDMI Features Supported**.

### **9** *USB In*

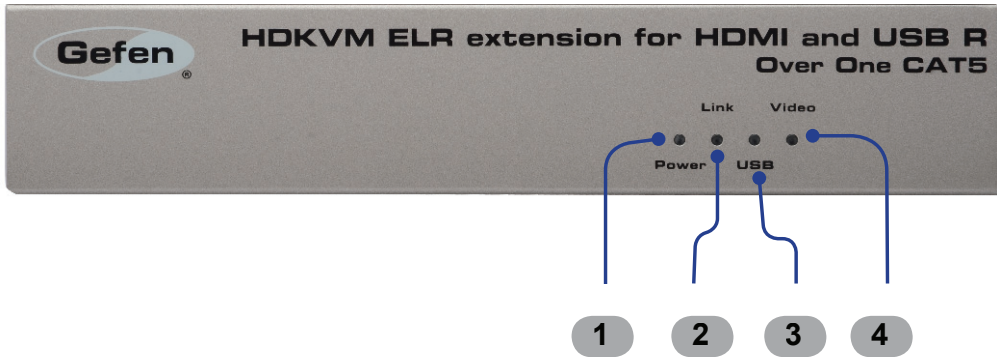
Connect the USB source to this port using the supplied USB cable.

### **10** *5V DC*

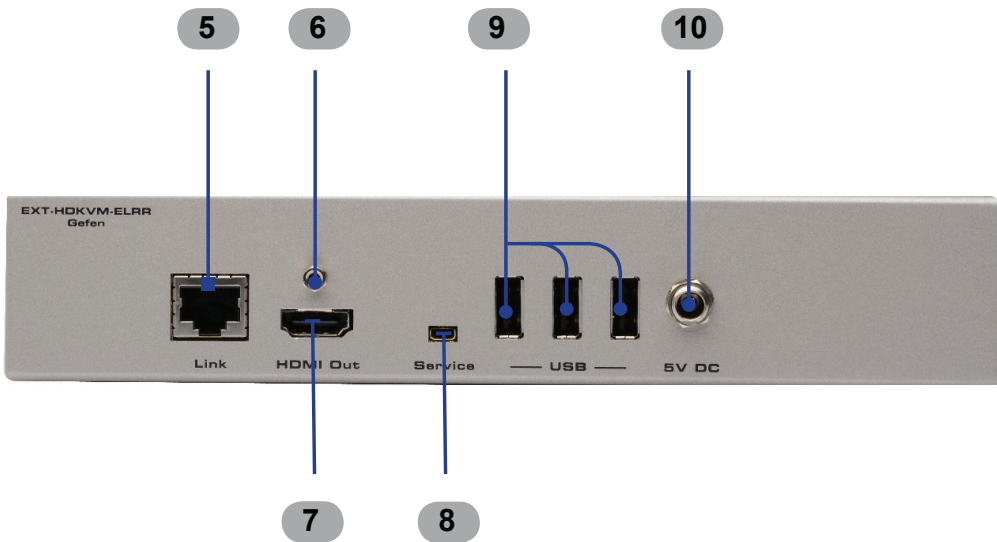
Connect the included 5V DC locking power supply to this connector.

# RECEIVER UNIT LAYOUT

## Front



## Back



## RECEIVER UNIT DESCRIPTIONS

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### **1 Power Indicator**

This LED indicator will glow bright blue once the included 5V DC locking power supply has been properly connected to the unit and the AC power cord has been plugged into an available electrical outlet.

### **2 Link Indicator**

This LED indicator will flash bright blue on and off until the Sender and Receiver unit are connected using a CAT-5e cable.

### **3 USB Indicator**

This LED will flash bright blue on and off until the Sender and Receiver unit are connected using a CAT-5e cable. The USB source must be connected to the Sender unit.

### **4 Video Indicator**

This LED will flash bright blue on and off until the Sender and Receiver unit are connected using a CAT-5e cable. The Hi-Def source must be connected to the Sender unit.

### **5 Link**

Connects the Receiver to the Sender unit using a CAT-5e cable.

### **6 Locking Connector**

Used to lock the HDMI cable in place

### **7 HDMI Out**

Connect an HDTV display to this HDMI port.

### **8 Service**

Mini-USB service port used for upgrading the firmware

### **9 USB**

Connects up to three USB devices (i.e mouse, keyboard, camera)

### **10 5V DC**

Connect the included 5V DC locking power supply to this connector.

# CONNECTING THE HDKVM ELR EXTENSION FOR HDMI AND USB OVER ONE CAT5

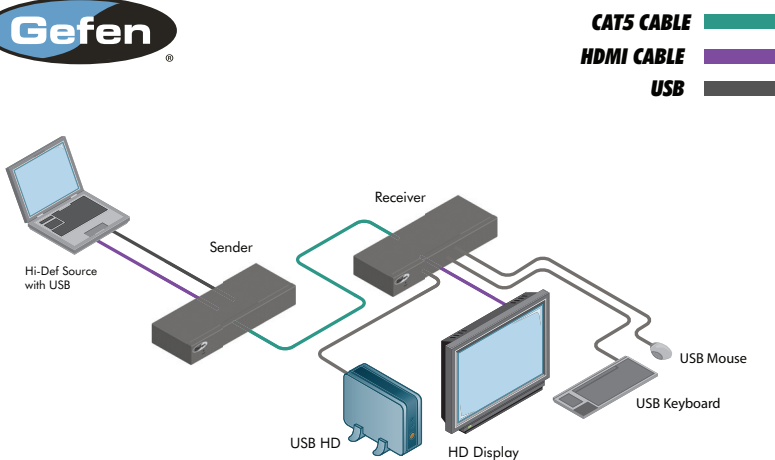
## How to Connect the HDKVM ELR extension for HDMI and USB Over One CAT5

1. Using the included locking HDMI cable, connect the computer (Hi-Def source) to the **HDMI In port** on the Sender unit. Connect another locking HDMI cable from the **HDMI Out port** on the Receiver unit to the HDTV display.
2. Connect the included USB cable from the computer (Hi-Def source) to the **USB In port** on the Sender unit.
3. Up to three USB devices can be connected to the USB outputs on the Receiver unit.
4. Connect a CAT-5e cable from the **Link jack** on the Sender unit to the **Link jack** on the Receiver unit up to 330 feet (100 meters) away.



**NOTE:** If terminating network cables in the field, please adhere to the TIA/EIA568B specification (see page 11).

5. Connect the included 5V DC locking power supplies to the Sender and Receiver unit and plug the AC power cords into available electrical outlets. The Power LED's (on both the Sender and Receiver units) will turn on, indicating that both units are powered.
6. The Link LED indicators will flash until a link has been established.



**EXT-HDKVM-ELR**



**IMPORTANT:** This product cannot be disposed of in the general trash. Please contact your solid waste local authority.

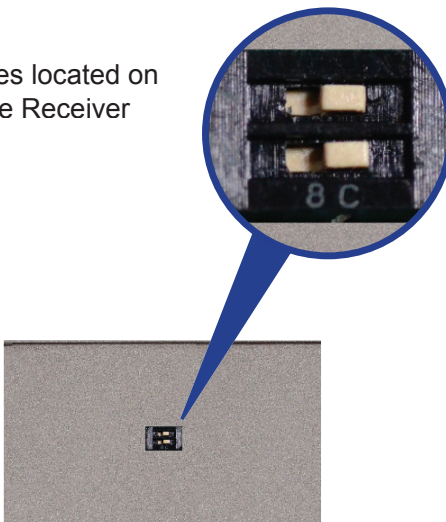
# DIP SWITCH CONFIGURATION

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## Receiver Unit

The Gefen HDKVM ELR extension for HDMI and USB Over One CAT5 contains DIP switches on the bottom of the Receiver unit (the Sender unit does not contain any DIP switches). Each DIP switch performs a different function.

Two DIP switches located on the bottom of the Receiver Unit.



### DIP Switch 1 - EDID Management

- **OFF - Local EDID**

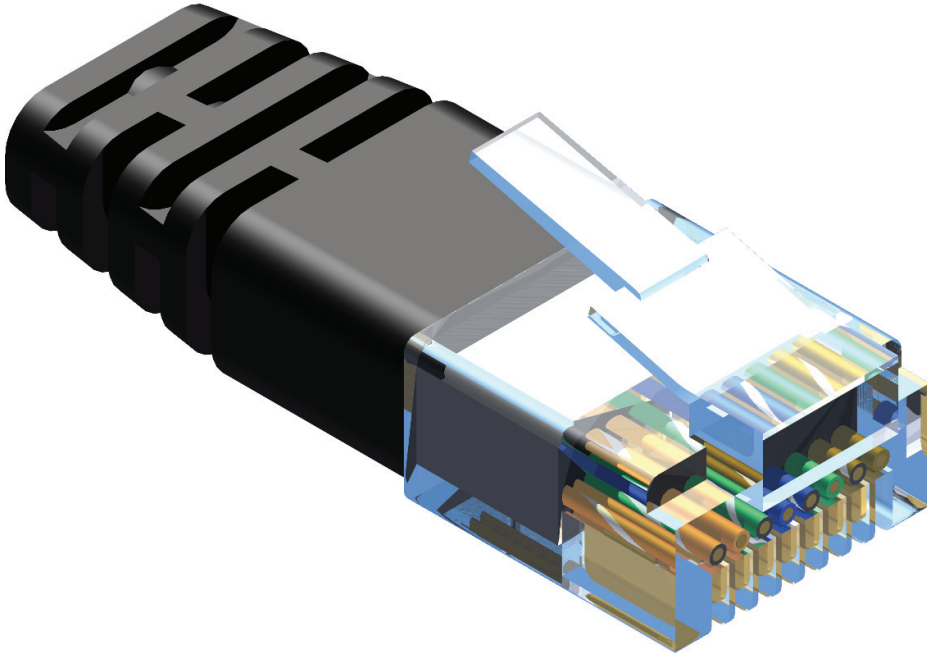
When Local EDID mode is used, the EDID will be assembled by copying all video and audio features of the connected output device.

- **ON (default) - Pass Through EDID**

Allows all video and audio features of the connected devices to be passed to the source device. By default, the unit is shipped with DIP 1 in the ON position.

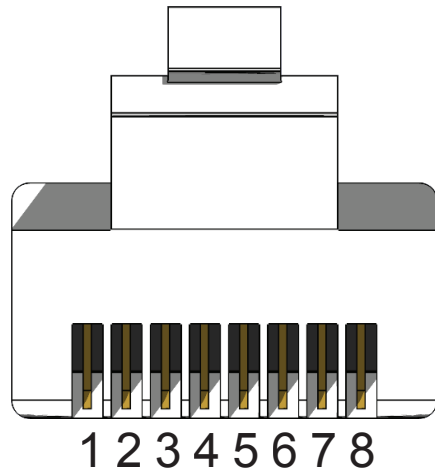
### DIP Switch 2 - FOR FUTURE USE

## NETWORK CABLE WIRING DIAGRAM



Gefen recommends the TIA/EIA-568-B wiring option. Please adhere to the table below when field terminating cable for use with Gefen products.

Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

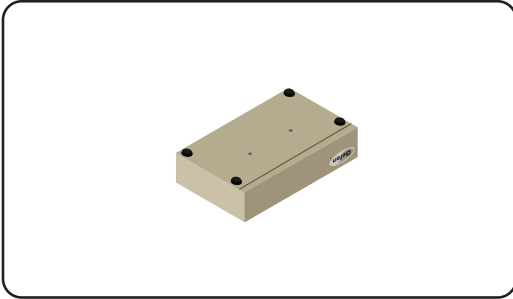


Cat-5, Cat-5e, and Cat-6 cabling comes in stranded and solid core types. Gefen recommends using solid core cabling.

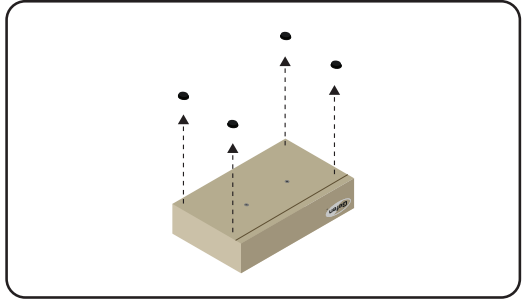
It is recommended to use one continuous run from one end to the other. In some cases, connecting through a patch might not work.

# RACK TRAY INSTALLATION

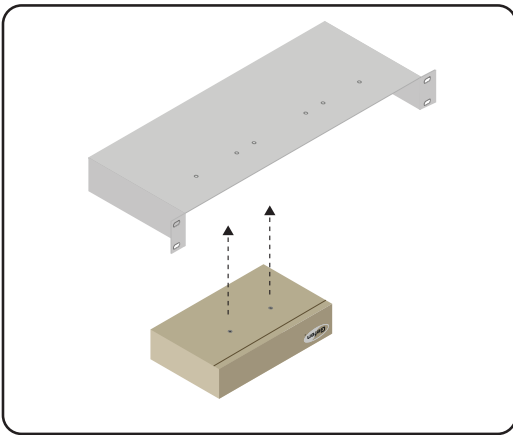
**Step 1** Turn unit upside down.



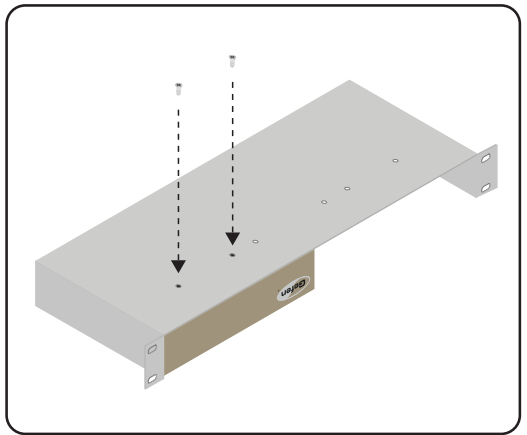
**Step 2** Remove rubber feet.



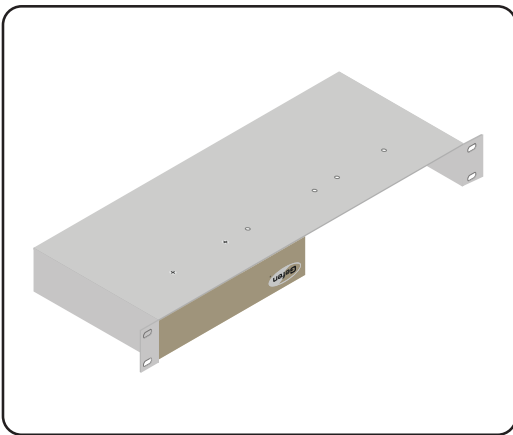
**Step 3** Line up holes on unit and rack tray.



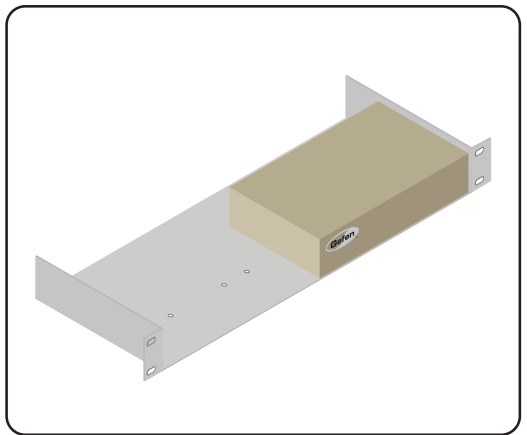
**Step 4** Install countersink screws.



**Step 5** Ensure the unit is installed securely.



**Step 6** Unit has been installed into rack tray.



## SPECIFICATIONS

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Maximum Pixel Clock.....	225 MHz
Video Input Connector (Sender).....	HDMI Type A, 19-pin, female locking
Video Output Connector (Receiver).....	HDMI Type A, 19-pin, female locking
USB Connector (Sender).....	(1) Type B, female
USB Connector (Receiver).....	(3) Type A, female
Link Connector (Sender / Receiver).....	RJ-45, shielded
Service Connector for field upgrades (Sender / Receiver).....	USB mini-B
Power Supply (Sender / Receiver).....	5V DC, Locking
Power Consumption (Sender / Receiver).....	10 W (max.)
Operating Temperature.....	0 to + 40 °C
Dimensions (W x H x D).....	8.5" x 1.75" x 4.5" (216mm x 45mm x 114mm)
Shipping Weight.....	6 lbs. (2.7 kg)



## WARRANTY

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Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at [www.gefen.com](http://www.gefen.com).

## PRODUCT REGISTRATION

**Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.**



\* MA - HDKVM - ELR \*

Rev A1



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This product uses UL or CE listed power supplies.