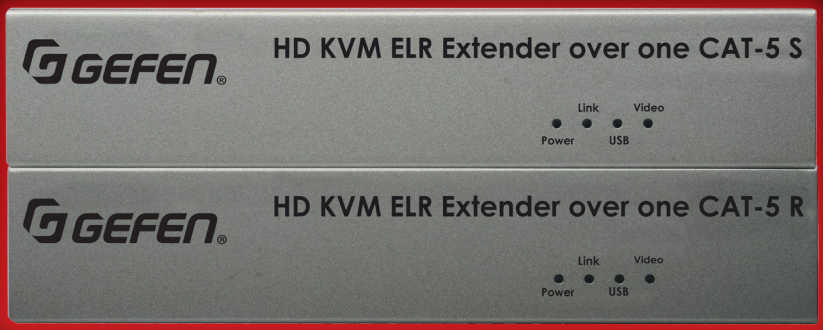
HD KVM

Extra Long Range Extender Over One CAT5

EXT-HDKVM-ELR

User Manual



Release A7

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

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.

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Product Registration

Register your product here: http://www.gefen.com/kvm/Registry/Registration.jsp

- Shielded CAT-5e (or better) cables should not exceed 330 feet (100 meters) between the Sender and Receiver unit.
- By default, the source device will use the EDID from the display (or other sink device) which is connected the Receiver unit. See EDID Management (page 8) for more information.
- If terminating network cables in the field, please adhere to the TIA/EIA568B specification. See the Network Cable Diagram (page 12) for details.

HD KVM Extra Long Range Extender Over One CAT5 is a trademark of Gefen, LLC.

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

This product uses UL listed or CE-compliant power supplies.

Features

- Extends 4K Ultra HD (3840 x 2160 @ 60Hz, 4:2:0 or 30Hz, 4:4:4), and USB over a single CAT-5e cable up to 330 feet/100 meters (8-bit color)
- Extends 4K Cinema (DCI) (4096 x 2160 @ 24 or 30Hz 4:4:4), and USB over a single CAT-5e cable up to 330 feet/100 meters (8-bit color)
- Extends HDMI at 1080p Full HD, and USB over a single CAT-5e cable up to 330 feet/100 meters (up to 12-bit Deep Color)
- Supported HDMI features:
  - ► HDMI 2.0
  - ► HDCP 1.4 compliant
  - ► 12-bit Deep Color
  - ► LPCM 7.1 audio, Dolby® TrueHD, Dolby Digital® Plus, and DTS-HD® Master Audio™ pass-through
  - ► 3DTV pass-through
  - ► CEC pass-through
  - ► Lip Sync pass-through
- Supports up to 30 Mbps when using USB 2.0
- Backward-compatible with USB 1.1
- EDID management for rapid integration of source and display devices
- ELR and HDBaseT® technologies
- Locking power supplies
- 1U tall, half-rack width enclosures are rack-mountable using EXT-RACK-1U

Packing List

The HD KVM Extra Long Range Extender Over One CAT5 ships with the items listed below. The packing contents of the Sender and Receiver unit are listed below. If any of these items are not present in the box when you first open it, immediately contact your dealer or Gefen.

- 1 x HDKVM ELR Extender over One CAT5 - Sender unit
- 1 x HDKVM ELR Extender over One CAT5 - Receiver unit
- 1 x 6 ft. HDMI cable, locking (M-M)
- 1 x 6 ft. USB Cable (A-B)
- 2 x 5V DC Locking Power Supplies
- 2 x AC Power Cord
- 1 x Quick-Start Guide

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1 Getting Started

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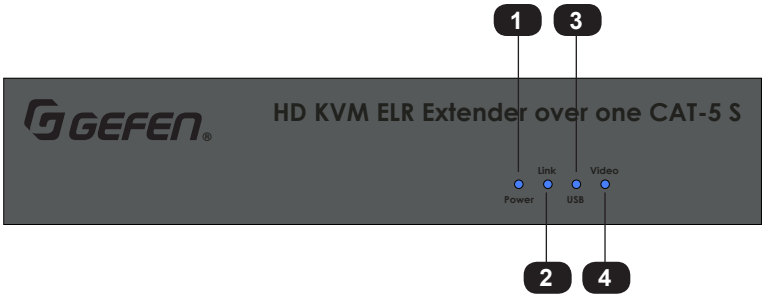
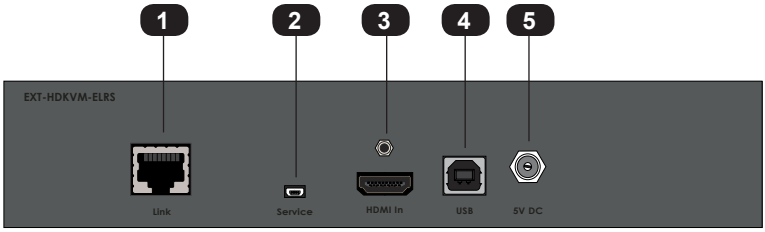
Sender Unit

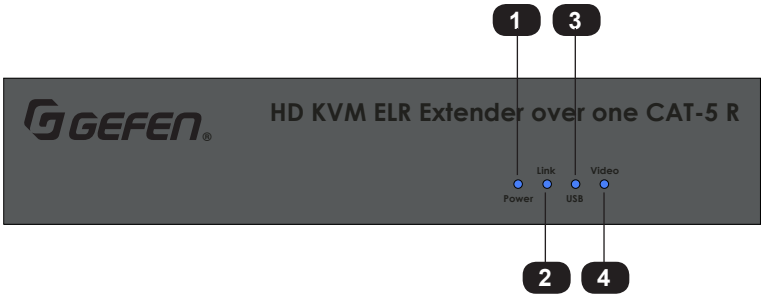


ID	Name	Description
1	Power	This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON.
2	Link	This LED glows solid blue when the Sender unit and Receiver unit are connected and passing video.
3	USB	This LED indicator glows solid blue when a USB source is connected to the Sender unit.
4	Video	This LED indicator flashes blue when a video source is connected to the Sender unit.

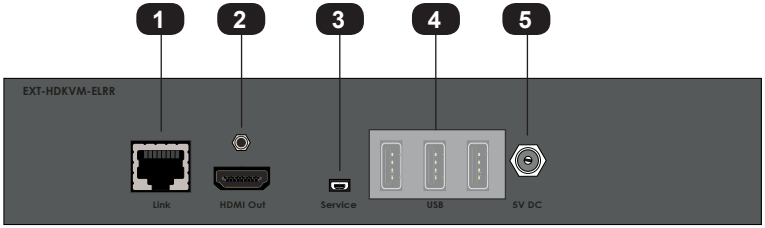


ID	Name	Description
1	Link	Connects the Sender unit to the Receiver unit using shielded CAT-5e (or better) cable.
2	Service	Mini-USB port for factory use only.
3	HDMI In	Connect the included HDMI cable from this connector to the HD source.
4	USB	Connect the included USB cable from the computer to this USB port.
5	5V DC	Connect the included 5V DC locking power supply to this power receptacle.

Receiver Unit



ID	Name	Description
1	Power	This LED glows solid blue when the unit is connected to an AC outlet and the unit is powered ON.
2	Link	This LED glows solid blue when the Sender unit and Receiver unit are connected and passing video.
3	USB	This LED indicator glows solid blue when a USB device is connected to the Receiver unit.
4	Video	This LED indicator flashes blue when a display is connected to the Receiver unit.



ID	Name	Description
1	Link	Connects the Receiver unit to the Sender unit using shielded CAT-5e (or better) cable.
2	HDMI Out	Connect an HDMI cable from this connector to the display.
3	Service	Mini-USB port for factory use only.
4	USB	Use these ports to connect up to three USB devices.
5	5V DC	Connect the included 5V DC locking power supply to this power receptacle.

Connection Instructions

► **Video**

1. Connect the included HDMI cable between the HD source and **HDMI In** port on the Sender unit.

2. Connect an HD display to the **HDMI Out** port on the Receiver unit using another HDMI cable.

► **Network cable**

3. Connect a shielded CAT-5e (or better) cable, up to 300 feet (100 meters) from the **Link** port on the Sender unit to the **Link** port on the Receiver unit.

► **USB**

4. Connect the included USB cable from the computer to the **USB In** port on the Sender unit.

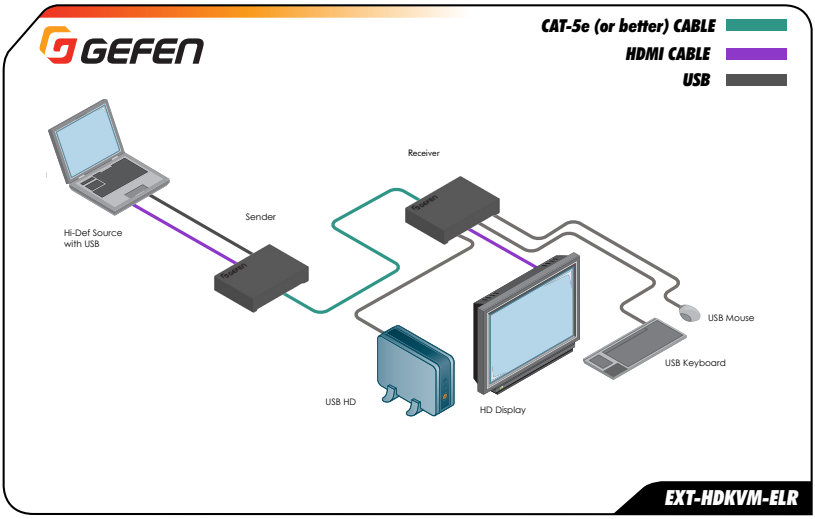
5. Connect up to three USB devices to the **USB** ports on the Receiver unit.

► **Power**

6. Connect the included 5V DC power supplies to the power receptacles on the Sender and Receiver unit.

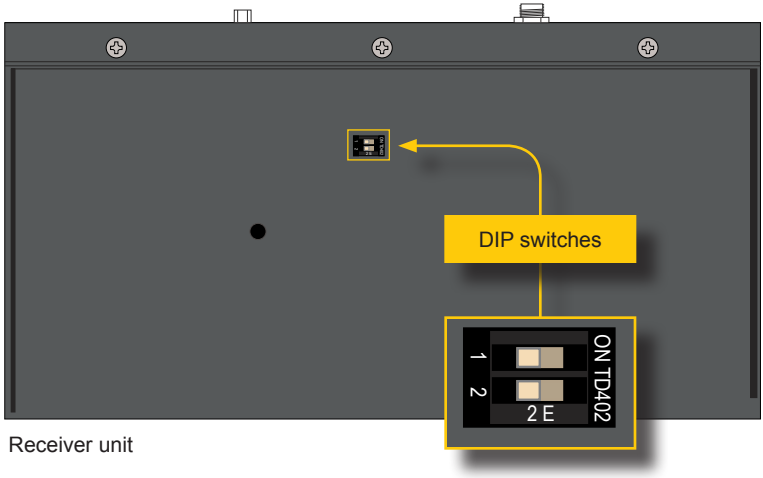
7. Connect the included AC power cords to each power supply and connect both power cords to available electrical outlets.

Sample Wiring Diagram



DIP Switches

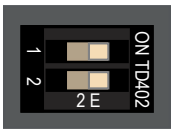
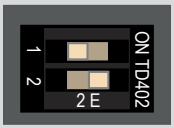
On the bottom of the Receiver unit are a bank of DIP switches. DIP switch 1 controls EDID management. DIP switch 2 is not used.



Receiver unit

EDID Management

The HD KVM Extra Long Range Extender Over One CAT5 provides EDID management. The Sender unit can use the EDID from the sink device (downstream EDID) or the built-in default EDID. Set DIP switch 1 to the ON (up) position to use the external (downstream) EDID. Set DIP switch 1 to the OFF (down) position to use the internal EDID.

Description	DIP Switch Setting
External (downstream) EDID mode • DIP 1 = ON (default) • Allows all video and audio features of the connected device to be passed to the source device. • This mode must be used to pass HDCP content.	
Internal EDID mode • DIP 1 = OFF • Uses the internal EDID on the Sender unit.	

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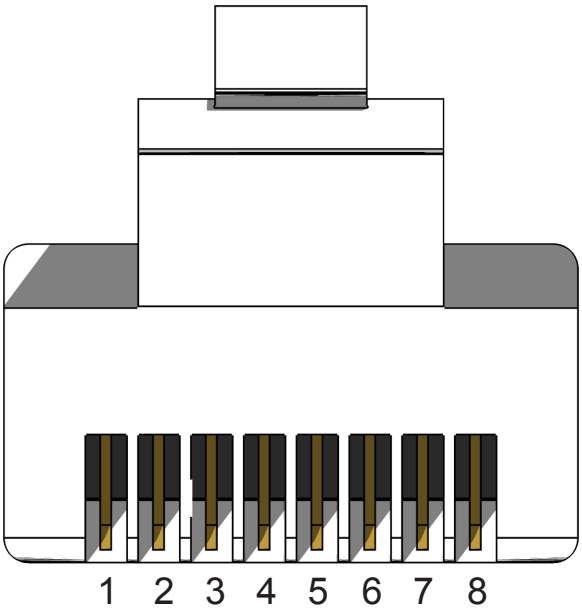
Network Cable Diagram

Front of RJ-45 Connector



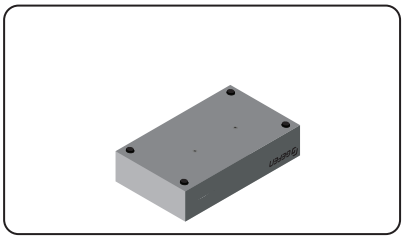
Gefen recommends the TIA/EIA-568-B wiring option. Use the table below when field-terminating cable for use with Gefen products.

Pin	Color	Description
1	Orange / White	TD+ (Transmit Data, positive differential signal)
2	Orange	TD- (Transmit Data, negative differential signal)
3	Green / White	RD+ (Receive Data, positive differential signal)
4	Blue	Unused
5	Blue / White	Unused
6	Green	RD- (Receive Data, negative differential signal)
7	Brown / White	Unused
8	Brown / White	Unused

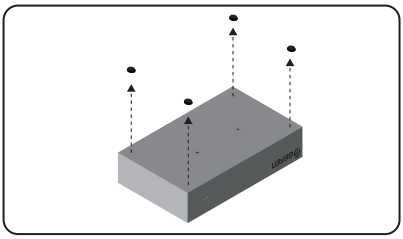
Information

Shielded CAT-5e (or better) cabling is recommended.

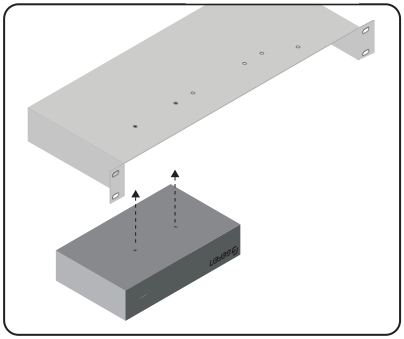
Step 1 Turn unit upside down.



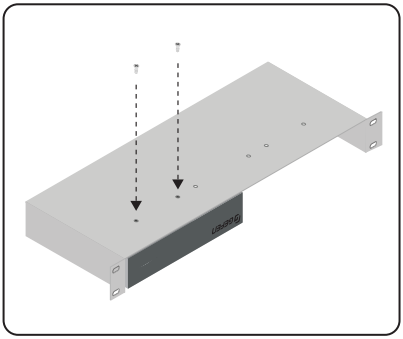
Step 2 Remove rubber feet.



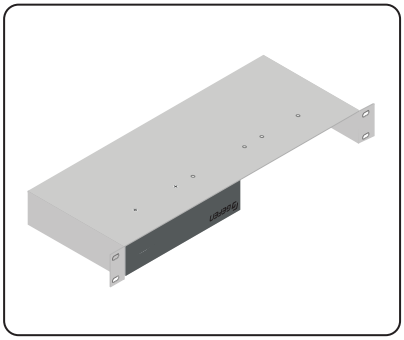
Step 3 Line up holes on unit and rack tray.



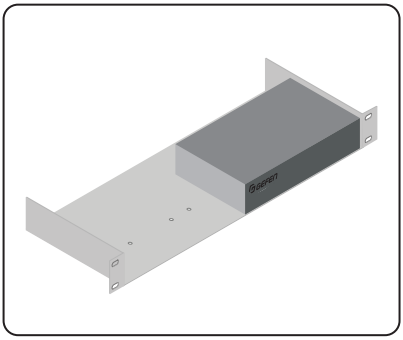
Step 4 Install countersink screws .



Step 5 Ensure the unit is installed securely.



Step 6 Unit has been installed into rack tray.



Specifications

Supported Formats	
Resolutions (max.)	• 1080p Full HD • 1920 x 1200 (WUXGA) • 4096 x 2160 (4K)

Connectors, Controls, and Indicators	
HDMI In (Sender)	• 1 x HDMI Type-A, 19-pin, female, locking
HDMI Out (Receiver)	• 1 x HDMI Type-A, 19-pin, female, locking
USB (Sender)	• 1 x Type B, female
USB (Receiver)	• 3 x Type A, female
Service (Sender / Receiver)	• 1 x USB mini-B
Link (Sender / Receiver)	• 1 x RJ-45, shielded
5V DC (Sender / Receiver)	• 1 x Locking
Power indicator (Sender / Receiver)	• 1 x LED, blue
Link indicator (Sender / Receiver)	• 1 x LED, blue
USB indicator (Sender / Receiver)	• 1 x LED, blue
Video indicator (Sender / Receiver)	• 1 x LED, blue

Operational	
Maximum Pixel Clock	• 300 MHz
Maximum TMDS Clock	• 300 MHz
Power Input	• 5V DC
Power consumption	• 10W ea. (max.)
Operating Temperature	• +32 to +104 ºF (0 to +40 ºC)
Operating Humidity	• 20% to 80% RH, non-condensing
Storage Temperature	• -4 to +158 ºF (-20 to +70 ºC)
Storage Humidity	• 10% to 90% RH, non-condensing

Physical	
Dimensions (W x H x D)	• 8.5” x 1.75” x 4.5” (216mm x 45mm x 114mm)
Unit Weight	• 2.0 lbs. (0.91 kg)

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