



# 2x Dual Link DVIKVM Extender Over CAT-6a

**EXT-2DVI-DLKVM-CAT6  
User Manual**



**[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.

**2x Dual Link DVIKVM Extender Over CAT-6a** is a trademark of Gefen, LLC

# CONTENTS

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- 1 Introduction
- 2 Operation Notes
- 3 Features
- 4 Sender Unit Layout
- 5 Sender Unit Descriptions
- 6 Receiver Unit Layout
- 7 Receiver Unit Descriptions
- 9 Connecting the 2x Dual Link DVIKVM Extender Over CAT-6a
- 9     Wiring Diagram
- 10 DIP Switch Configuration
- 12 Adjusting the Signal Quality
- 13 Network Cable Wiring Diagram
- 14 Specifications
- 15 Warranty

# INTRODUCTION

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Congratulations on your purchase of the 2x Dual Link DVI KVM Extender Over CAT-6. 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 implement and simple to operate.

## **The Gefen 2x Dual Link DVI KVM Extender Over CAT-6a**

The 2x Dual Link DVIKVM Extender over CAT-6a is a cost-effective solution that allows the extension of keyboard, video and mouse to a remote workstation up to 200 feet (60 meters away). This product is particularly useful because it is able to extend dual link resolutions beyond the limitations of standard DVI cables. Dual-link resolutions up to 3840 x 2400 are supported using two CAT-6a cables for each display. USB 2.0 data rates up to 480 Mbps are supported in addition to backward-compatibility with USB 1.1. The Receiver unit allows the connections of up to four USB devices, providing access to printers, scanners, cameras, external storage media, digital signage, and automated control systems.

## **How It Works**

Place the 2x Dual link DVIKVM Extender over CAT-6a Sender unit next to the DVI sources. Use the included DVI cables to connect the DVI sources 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 two dual-link DVI displays using DVI cables. Connect up to four USB devices to the Receiver unit. Use five CAT-6a cables, each up to 200 feet (60 meters), to connect the Sender 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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### READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 2X DUAL LINK DVIKVM EXTENDER OVER CAT-6A

- The *2x Dual Link DVIKVM Extender Over CAT-6a* was designed for use with high quality CAT-6a (augmented) cabling. This unit will either not perform to specification if cabling other than CAT-6a is used.
- When using CAT-5e cables, the maximum extension distance is 150 feet (30 meters) at 1080p Full HD or 2560 x 1600.
- When field terminating CAT-6a cabling please adhere to the TIA/EIA-568-B specification shown on page 12.
- USB can be extended up to 330 feet (100 meters).



**IMPORTANT:** When extending Dual Link resolutions, both CAT-6a cables must be exactly the same length.

# FEATURES

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## Features

- Extends two dual-link DVI sources with USB 2.0 up to 200 feet (60 meters) using CAT-6a cables.
- Supports dual-link resolutions up to 3840 x 2400
- HDCP-compliant
- Supports 480 Mbps using USB 2.0
- Backward-compatible with USB 1.1 devices
- Supports DDWG standard for DVI-compliant monitors
- Supports any Operating System (OS)
- EDID management for rapid intergration of source and display devices
- EQ adjustment trim pots on Receiver unit to equalize the signal to compensate for cable length and the quality/skew variances found among different CAT-5e/ CAT-6a cables
- Rack-mountable
- Plug and Play

## Applications

- This product is used for dual-display extended desktop applications.

## Package Includes

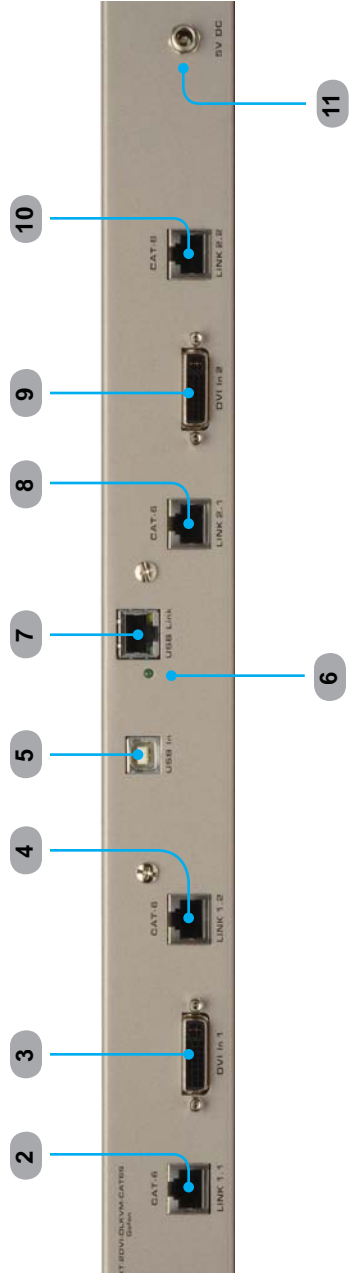
- (1) 2x Dual Link DVIKVM Extender over CAT-6a - Sender Unit
- (1) 2x Dual Link DVIKVM Extender over CAT-6a - Receiver Unit
- (2) 6ft. Dual-Link DVI cable (M-M)
- (1) 6ft. USB Cable (A-B)
- (2) 5V DC Locking Power Supplies
- (1) AC Power Cord
- (2) Sets of Rack Ears
- (1) Quick-Start Guide

# SENDER UNIT LAYOUT

## Front Panel



## Back Panel





## SENDER UNIT DESCRIPTIONS

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**1 Power**

This LED indicator will glow bright red once the included 5V DC locking power supply is properly connected between the unit and an available electrical outlet.

**2 CAT-6 / Link 1.1**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 1.1* port on the Receiver unit.

**3 DVI In 1**

Connect a dual-link cable from this connector to the DVI (digital only) source.

**4 CAT-6 / Link 1.2**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 1.2* port on the Receiver unit.

**5 USB In**

Connect the included USB cable between this port and a computer (or other USB host device).

**6 USB Link LED**

This LED indicator will glow bright green when a CAT-6a cable is connected between the USB Link ports on both the Sender and Receiver unit.

**7 USB Link**

Connect a CAT-6a cable between this jack and the USB Link jack on the Receiver unit.

**8 CAT-6 / Link 2.1**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 2.1* port on the Receiver unit.

**9 DVI In 2**

Connect a dual-link cable from this connector to the DVI (digital only) source.

**10 CAT-6 / Link 2.2**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 2.2* port on the Receiver unit.

**11 5V DC**

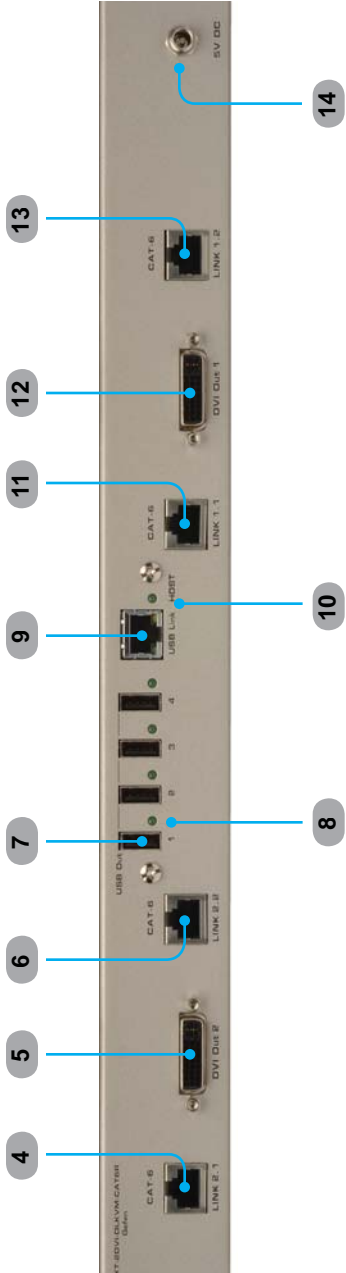
Connect the included 5V DC locking power supply to this receptacle.

# RECEIVER UNIT LAYOUT

## Front Panel



## Back Panel



## RECEIVER UNIT DESCRIPTIONS

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### **1 EQ 1**

The EQ adjustment (trim pot) for *DVI Out 1*. Both *EQ 1* and *EQ 2* compensate for the extension distance and the quality/skew variances that are found in different brands of CAT-6a cables.

### **2 EQ 2**

The EQ adjustment (trim pot) for *DVI Out 2*.

### **3 Power**

The LED power indicator will glow bright red once the included 5V DC power supply is properly connected between the unit and an available electrical outlet.

### **4 Link 2.1**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 2.1* port on the Sender unit.

### **5 DVI Out 2**

Connect a dual-link cable from this connector to the a DVI display.

### **6 Link 2.2**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 2.2* port on the Sender unit.

### **7 USB Out (1 - 4)**

Connect up to four USB devices to these ports.

### **8 USB Out LED (1 - 4)**

Each of these LED indicators will glow bright green once a USB device is connected to the USB port.

### **9 USB Link**

Connect a CAT-6a cable between this jack and the *USB Link* jack on the Receiver unit.

### **10 Host LED**

This LED indicator will glow bright green when a CAT-6a cable is connected between the USB Link ports on both the Sender and Receiver unit.

### **11 Link 1.1**

Connect a CAT-6a cable between this port and the *CAT-6 / Link 1.1* port on the Sender unit.

### **12 DVI Out 1**

Connect a dual-link cable from this connector to the a DVI display.

## RECEIVER UNIT DESCRIPTIONS

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**13 *Link 1.2***

Connect a CAT-6a cable between this port and the *CAT-6 / Link 1.2* port on the Sender unit.

**14 *5V DC***

Connect the included 5V DC power supply between this input and an open wall power socket.

# CONNECTING THE 2X DUAL LINK DVIKVM EXTENDER OVER CAT-6A

## How to Connect the 2x Dual Link DVIKVM Extender Over CAT-6a

1. Connect the included dual-link DVI cables between the DVI outputs on each computer and the *DVI In* connectors on the *2x Dual Link DVIKVM Extender Over CAT-6a* Sender unit.
2. Connect the included USB cable from the computer (or other USB host device) to the *USB In* port on the Sender unit.
3. Connect five CAT-6a cables between the Sender and Receiver units. Each connector on the Sender and Receiver unit is identified as *Link 1.1*, *Link 1.2*, *Link 2.1*, *Link 2.2*, and *USB Link*. When connecting the CAT-6 cables, make sure that the connectors on the Sender unit are connected to the corresponding connectors on the Receiver unit (e.g. Link 1.1 --> Link 1.1, Link 1.2 -> Link 1.2, USB Link --> USB Link, and so on).



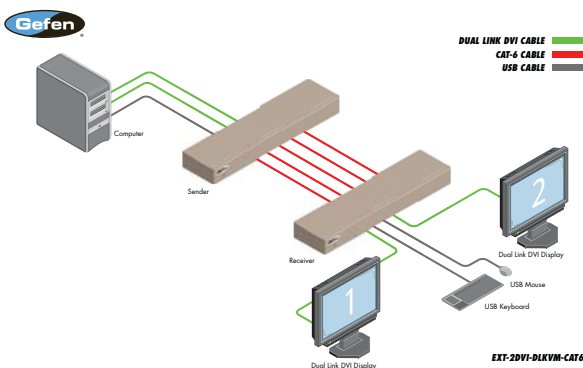
**NOTE:** When field-terminating CAT-6a cables, follow the TIA/EIA-568-B specification outlined on page 13.



**IMPORTANT:** When extending Dual Link resolutions, both CAT-6a cables must be exactly the same length.

4. Connect two dual-link DVI cables from the Receiver unit to each of the two dual-link displays.
5. Connect up to four USB devices to the *USB Out* ports on the Receiver unit.
6. Connect the included 5V DC power supplies to the Sender and Receiver units. Connect the AC power cord from each power supply to available electrical outlets.

## Wiring Diagram for the 2x Dual Link DVIKVM Extender Over CAT-6a



# DIP SWITCH CONFIGURATION

## DIP Switch Location

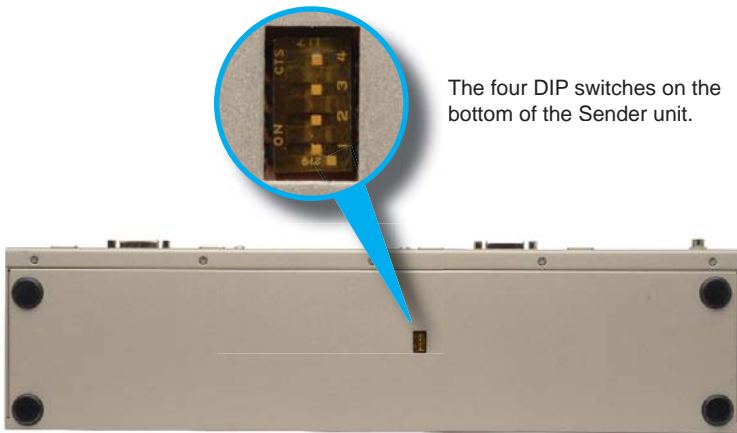
On the bottom of both the Sender unit and Receiver unit is a bank four (4) DIP switches.

The DIP switches on the Sender unit allow the management of EDID, fiber optic extenders, and HDCP.



**NOTE:** The DIP switches on the Receiver unit do not provide any function and are reserved for future expansion.

## Sender unit



The four DIP switches on the bottom of the Sender unit.

## DIP Switch 1 - EDID Management

- ***ON - Pass Through EDID***

DDC and HPD are passed through. Both the connection status and the full video capabilities of the monitor. All video features of the connected devices are passed to the source device.

- ***OFF (default) - Local EDID***

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

## DIP SWITCH CONFIGURATION

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### DIP Switch 2: +5V for Fiber Optic Extenders

- **ON - Enable +5V**

Enable +5V for DVI fiber optic extenders.

- **OFF (default) - Disable +5V**

Disable +5V for DVI fiber optic extenders.

### DIP Switch 3: DVI Support\*

*DIP switch 3 is only functional when DIP switch 1 is set to OFF (Local EDID).*

- **ON - DVI Mode**

If a DVI connection is used, set DIP 3 to the ON position. DVI is supported by disabling HDCP pass-through.

- **OFF (default) - HDCP Pass-Through**

If HDMI is connected, set DIP 3 in the OFF position.

### DIP Switch 4: Not used

- Reserved for future expansion.



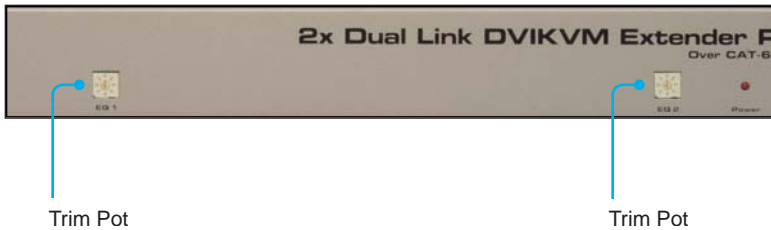
**IMPORTANT:** After changing DIP switch 1 or DIP switch 3, the Sender unit must be power-cycled for the changes to take effect.

# ADJUSTING THE SIGNAL QUALITY

## Adjusting the Signal Quality

The *2x Dual Link DVIKVM Extender Over CAT-6a* Receiver unit has two trim pots (trim potentiometers) to compensate for the extension distance and the quality/skew variances that are found in different CAT-6a cabling brands. *EQ 1* adjusts the output signal for *DVI Out 1* and *EQ 2* adjusts the signal for *DVI Out 2*. If there is no output video or if output video contains video artifacts and/or video noise such as snow, use the steps below to adjust the trim pot.

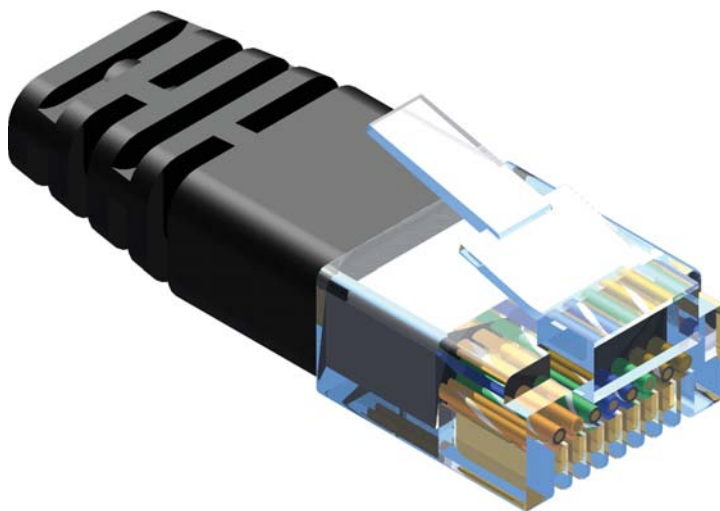
1. Insert a small flat-headed tool into each of the trim pots on the front panel of the Receiver unit.
2. Each trim pot has 8 set positions. Turn the trim pot in a clockwise fashion until it clicks to the next position. Continue adjusting the trim pot by trying all 8 positions until the issue is resolved.
3. Carefully remove the adjustment tool.



**IMPORTANT:** Any time a cable is changed-out or replaced, the trim pots on the Receiver unit will need to be adjusted.

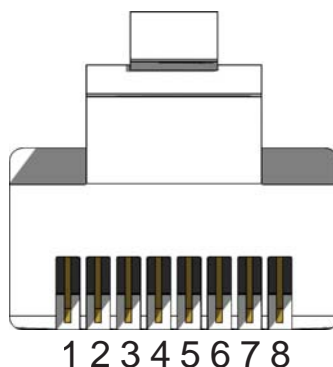


## NETWORK CABLE WIRING DIAGRAM



Gefen has specifically engineered products to work with the TIA/EIA-568-B specification. Please follow the table below when field terminating cable for use with Gefen products. Failure to do so may produce unexpected results and reduced performance.

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



This product was designed for use with CAT-6a (augmented) cabling only. This unit will either not perform to specification or refuse to operate completely if cabling other than CAT-6a is used.

Each cable run must consist of a single undivided segment of CAT-6a cabling from Sender to Receiver. Punch-down blocks or splices will not work.

## SPECIFICATIONS

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Maximum Pixel Clock.....	2 x 165 MHz
Input Video Signal.....	1.2V p-p
Input DDC Signal.....	5V p-p (TTL)
Video Input Connectors (Sender).....	(2) DVI-I, 29-pin, female (digital only)
Video Output Connectors (Receiver).....	(2) DVI-I, 29-pin, female (digital only)
USB Host Connector (Sender).....	(1) USB Type B, female
USB Device Connectors (Receiver).....	(4) USB Type A, female
Link Connectors (Sender / Receiver).....	(5) RJ-45
Power Supply (Sender / Receiver).....	5V DC, Locking
Power Consumption (Sender / Receiver).....	20W (max.)
Operating Temperature.....	+32 to +104 °F (0 to + 40 °C)
Dimensions: (W x H x D).....	17.5" x 2.5" x 5" (445mm x 64mm x 127mm)
Rack Space.....	1U (rack ears included)
Shipping Weight.....	9.5 lbs (4.3 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.**



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This product uses UL listed power supplies.