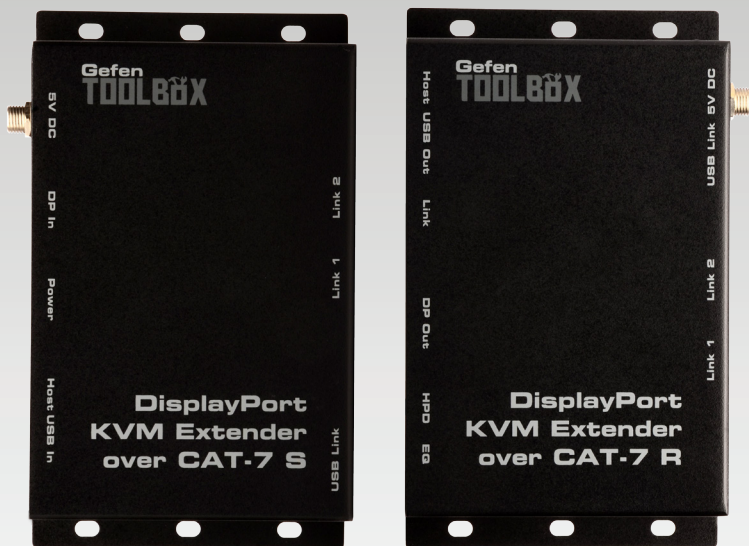


# DisplayPort KVM Extender over CAT-7

GTB-DPKVM-3CAT7  
GTB-DPKVM-3CAT7-BLK

User Manual  
Release A6



Gefen  
**TOOLBOX**<sup>®</sup>

# Important Safety Instructions

## GENERAL SAFETY INFORMATION

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.

# Warranty Information

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.**

# Contacting Gefen Technical Support

Gefen, LLC  
c/o Customer Service  
20600 Nordhoff St.  
Chatsworth, CA 91311

Telephone: (818) 772-9100  
(800) 545-6900

Fax: (818) 772-9120

Email: [support@gefentoolbox.com](mailto:support@gefentoolbox.com)

Visit us on the Web: [www.gefentoolbox.com](http://www.gefentoolbox.com)

Technical Support Hours: 8:00 AM to 5:00 PM Monday - Friday, Pacific Time

**DisplayPort KVM Extender over CAT-7** is a trademark of Gefen, LLC.

### **Important Notice**

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

## Operating Notes

- CAT-7 cables should not exceed 100 feet (30 meters).
- Resolutions up to 1920 x 1200 (WUXGA) or 1080p Full HD plus USB are supported when using two CAT-7 cables. Three CAT-7 cables must be used to support 2560 x 1600 (WQXGA) plus USB. See [Connecting the DisplayPort KVM Extender over CAT-7](#) for details.
- The DisplayPort KVM Extender over CAT-7 only supports 8-bit color.
- This product extends DisplayPort video only. It does not support audio.

# Features and Packing List

## Features

- Extends DisplayPort and USB up to 100 feet (30 meters)
- Supports resolutions up to 2560 x 1600 and USB over three CAT-7 cables, and up to 1920 x 1200 or 1080p Full HD and USB over two CAT-7 cables
- HDCP compliant
- Supports DisplayPort 1.1a
- Supports USB 2.0 at 480 Mbps
- Backward-compatible with USB 1.1
- 16-position EQ rotary switch to compensate for cable skew
- HPD Auto-Calibration button
- Pre-emphasis switch
- Drive level switch
- Boost level switches
- Power On indicator
- Independent Video and USB Link indicators
- Locking power supplies
- Surface-mountable
- Available in Black and White



## Packing List

The *DisplayPort KVM Extender over CAT-7* ships with the items 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 DisplayPort KVM Extender over CAT-7 (Sender unit)
- 1 x DisplayPort KVM Extender over CAT-7 (Receiver unit)
- 1 x 6 ft. DisplayPort cable (M-M)
- 1 x 6 ft. USB cable (A-B)
- 2 x 5V DC power supplies
- 1 x Quick-Start Guide

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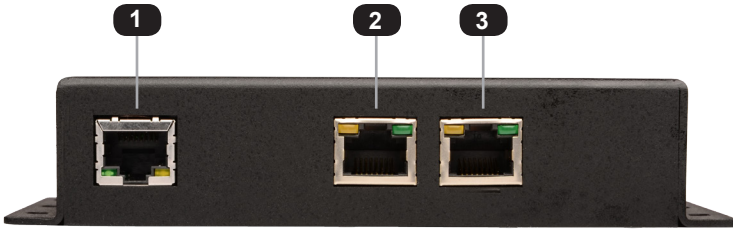
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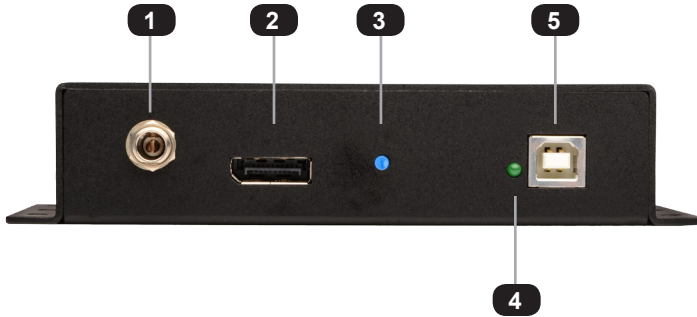
# Panel Layout

## Sender Unit (Front)



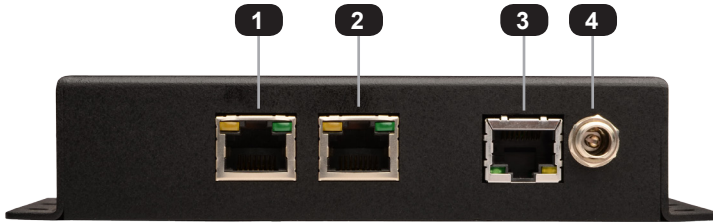
ID	Name	Description
1	USB Link	Connect a CAT-7 cable between this jack and the USB Link jack on the Receiver unit. This RJ-45 jack must be used when extending USB.
2	Link 1	Connect a CAT-7 cable between this RJ-45 jack and the Link 1 jack on the Receiver unit.
3	Link 2	Connect a CAT-7 cable between this RJ-45 jack and the Link 2 jack on the Receiver unit. Both Link 1 and Link 2 jacks (two CAT-7 cables) must be used when extending video resolutions up to 2560 x 1600.

### Sender Unit (Back)



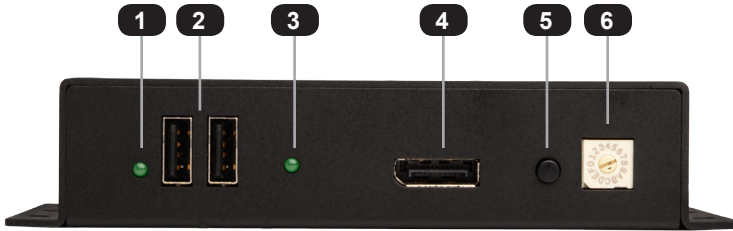
ID	Name	Description
1	5V DC	Connect the included 5V DC locking power supply to this connector and plug the AC power cord into an available electrical outlet. Only use the power supply shipped with this unit.
2	DP In	Connect a Hi-Def source to this port using a DisplayPort cable.
3	Power	This LED indicator will glow bright blue when the unit is powered.
4	Host	This LED will glow bright green when the host USB device is connected to the <b>USB In</b> port.
5	USB In	Connect the included USB cable between this port and a computer (or other USB host device).

## Receiver Unit (Front)



ID	Name	Description
1	Link 1	Connect a CAT-7 cable between this RJ-45 jack and the Link 1 jack on the Sender unit.
2	Link 2	Connect a CAT-7 cable between this RJ-45 jack and the Link 2 jack on the Sender unit. Both Link 1 and Link 2 jacks (two CAT-7 cables) must be used when extending video resolutions up to 2560 x 1600.
3	Link 2	Connect a CAT-7 cable between this jack and the USB Link jack on the Sender unit. This RJ-45 jack must be used when extending USB.
4	5V DC	Connect the included 5V DC locking power supply to this connector and plug the AC power cord into an available electrical outlet. Only use the power supply shipped with this unit.

## Receiver Unit (Back)



ID	Name	Description
1	Host	This LED will glow bright green when the host USB device is connected to the <b>USB In</b> port.
2	USB Out	Connect up to two USB devices (mouse, keyboard, camera, etc.) to these ports.
3	Link	This LED indicator will glow bright green when a CAT-7 cable is connected between the USB Link ports on both the Sender and Receiver unit.
4	DP Out	Connect a DisplayPort cable from this port to the display.
5	HPD	Press this button to cycle the HPD line on the Receiver unit. See <a href="#">Hot-Plug Detect (HPD)</a> for details.
6	EQ	Use this EQ rotary switch to adjust the quality of the output signal, based on the length and type of CAT-7 cable that is being used. See <a href="#">Adjusting the Signal Quality</a> for more information.

# Installation

## Connecting the DisplayPort KVM Extender over CAT-7

1. Use the included DisplayPort cable to connect the DisplayPort source to the **DP In** port on the Sender unit.
2. Connect the Receiver unit to the display using a DisplayPort cable.
3. Use the included USB cable to connect the USB host device to the **USB In** port on the Sender unit.
4. Connect up to two USB devices (keyboard, mouse, external drive, etc) to the **USB Out** ports on the Receiver unit.
5. Connect two CAT-7 cables between the Sender and Receiver units. Each connector on the Sender and Receiver unit is identified as **Link 1**, **Link 2**, and **USB Link**. When connecting the CAT-7 cables, make sure that each CAT-7 cable on the Sender unit is connected to the corresponding jacks on Receiver unit (e.g. **Link 1** → **Link 1**, **Link 2** → **Link 2**).

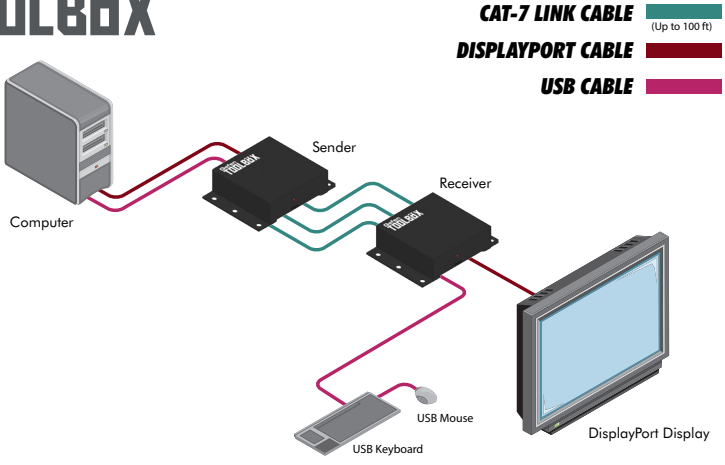


**NOTE:** The DisplayPort KVM Extender over CAT-7 will support resolutions up to 1920 x 1200 (WUXGA) and 1080p Full HD if a single CAT-7 cable is used. Two CAT-7 cables must be used to support resolutions up to 2560 x 1600.

If only a single CAT-7 cable will be used, the CAT-7 cable must be connected between the Link 1 connectors on both the Sender and Receiver unit.

6. Connect a CAT-7 cable between the **USB Link** jack on the Sender and Receiver unit.
7. Connect the included 5V DC locking power supplies to the Sender and Receiver unit. Do not overtighten the locking connectors.
8. Connect the AC power cords from each power supply to available electrical outlets.

### Sample Wiring Diagram



**GTB-DPKVM-3CAT7**





# DisplayPort KVM

## *Extender over CAT-7*





## 02 Operating the DisplayPort KVM Extender over CAT-7

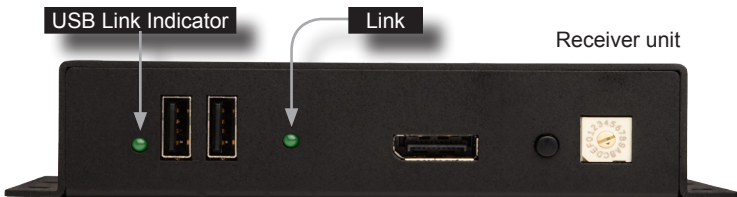
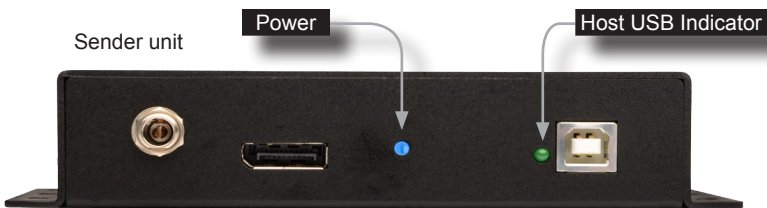
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# LED Indicators








## Sender Unit

The LED indicators on the Sender and Receiver unit provide basic information on the current status of the *DisplayPort KVM Extender over CAT-7*.

LED	Status	Description
Power	Solid blue 	<ul style="list-style-type: none"> <li>Power connected to Sender unit.</li> </ul>
	Off 	<ul style="list-style-type: none"> <li>No power supplied to Sender unit.</li> </ul>
Host USB	Solid green 	<ul style="list-style-type: none"> <li>Power connected to the Sender unit.</li> <li>USB devices connected properly.</li> <li>USB link integrity between Sender and Receiver unit is good.</li> </ul>
	Off 	<ul style="list-style-type: none"> <li>No power connected to the Sender unit.</li> <li>No DisplayPort source connected or source not active.</li> <li>Receiver unit not connected to display.</li> </ul>

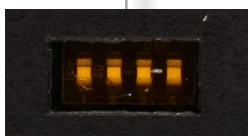
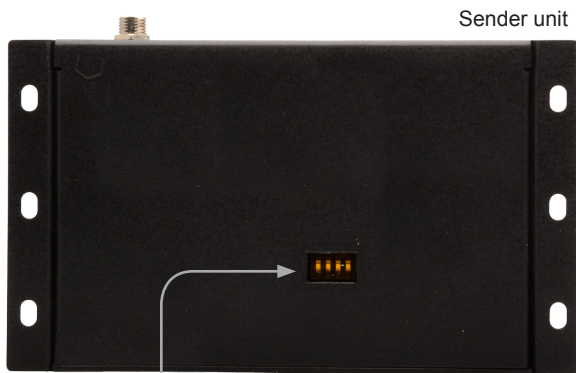


## Receiver Unit

LED	Status	Description
USB Link	Solid green 	<ul style="list-style-type: none"> <li>Power connected to the Receiver unit.</li> <li>USB devices connected properly.</li> <li>USB link integrity between Sender and Receiver unit is good.</li> </ul>
	Off 	<ul style="list-style-type: none"> <li>No power supplied to the Receiver unit.</li> <li>USB host not connected.</li> <li>CAT-7 cable not connected between <b>USB Link</b> jack on Sender and Receiver unit.</li> <li>Possible defective CAT-7 cable.</li> </ul>
	Flashing green 	<ul style="list-style-type: none"> <li>USB devices not connected.</li> </ul>
Link	Solid green 	<ul style="list-style-type: none"> <li>Power connected to the Receiver unit.</li> <li>Video link integrity between Sender and Receiver unit is good.</li> </ul>
	Off 	<ul style="list-style-type: none"> <li>No power supplied to the Receiver unit.</li> </ul>
	Solid red 	<ul style="list-style-type: none"> <li>CAT-7 cable not connected between <b>Link 1 / Link 2</b> jack on Sender and Receiver unit.</li> <li>Possible defective CAT-7 cable.</li> <li>Source / sink (display) not connected.</li> </ul>
	Flashing red 	<ul style="list-style-type: none"> <li>Receiver unit is attempting to establish a link with the Sender unit.</li> </ul>

## DIP Switch Configuration

The *DisplayPort KVM xtender over CAT-7* contains four DIP switches on the bottom of the Sender unit. Adjust the DIP switch settings based on the type and cable length that is being used.



1 2 3 4

DIP switches located on the bottom of the Sender Unit. If the DIP switch is ON, it will be in the "up" position.

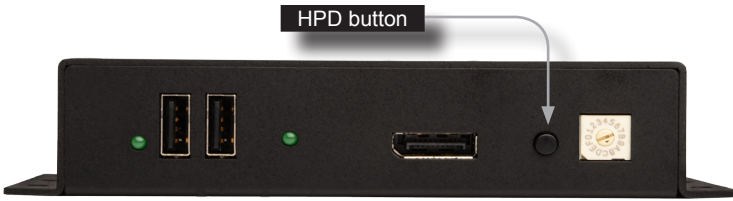
DIP Switch	Position	Differential Output Voltage
DIP 1	ON (default)	1.2 Vpp
	CENTER	1.0 Vpp
	OFF	600 mVpp

DIP Switch	Position	Pre-emphasis Select
DIP 2	ON (default)	9 dB
	CENTER	6 dB
	OFF	0 dB

DIP Switch	Position DIP 3	Position DIP 4	Boost Level (dB) @ 5 GHz
DIP 3 DIP 4	OFF	OFF	2.7 to 7.3 dB
	OFF	ON	12.2 to 16.6 dB
	ON	OFF	20.6 to 24.8 dB
	ON	ON	27.6 to 28.9

## Hot-Plug Detect (HPD)

The *DisplayPort KVM Extender over CAT-7* has an HPD button on the front of the Receiver unit. Pressing this button will cycle the HPD (Hot-Plug Detect) line on the display (sink) device. This HPD button provides the same effect as disconnecting then reconnecting the DisplayPort cable from the Receiver unit. Cycling the HPD line will cause the Receiver unit to re-read the EDID of the display and send it back to the DisplayPort source.

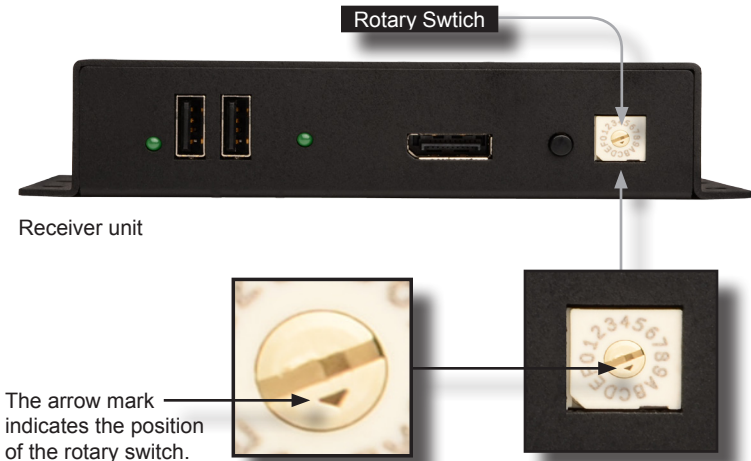


Receiver unit

## Adjusting the Signal Quality

The *DisplayPort KVM Extender over CAT-7* has an equalization device on the front of the Receiver unit. This 16-position rotary switch is used to adjust the boost level depending upon the length of the CAT-7 cable.

1. Insert a small flat-headed tool into the notch on the rotary switch.



The table below provides examples of various cable types and lengths for CAT-6 cabling.

Cable type	Length	Rotary switch position
Belden CAT-6A, UTP, 10Gx12 - 4PR/23	100 feet (30 meters)	3 through D
Belden CAT-6A, UTP, 10Gx12 - 4PR	130 feet (40 meters)	9 through B
Teldor CAT-6A, FTP, 4x(2x26/7) - 500 Mhz	115 feet (35 meters)	A through F
Draka CAT-6A, FTP UC500 4P 09 339765 107271827	100 feet (30 meters)	7 through C

2. Turn the rotary switch clockwise or counterclockwise until it clicks to the next position.
3. Check the image. Continue adjusting the rotary switch if the issue is not resolved.







# DisplayPort KVM

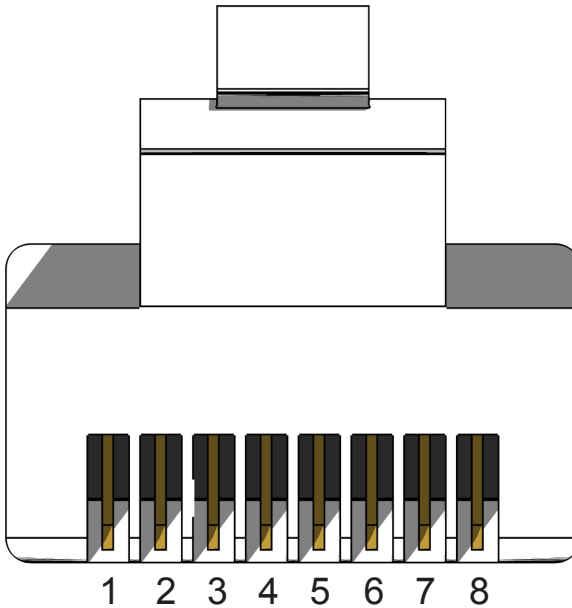
## *Extender over CAT-7*

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# Cable Termination

Front of RJ-45 Connector

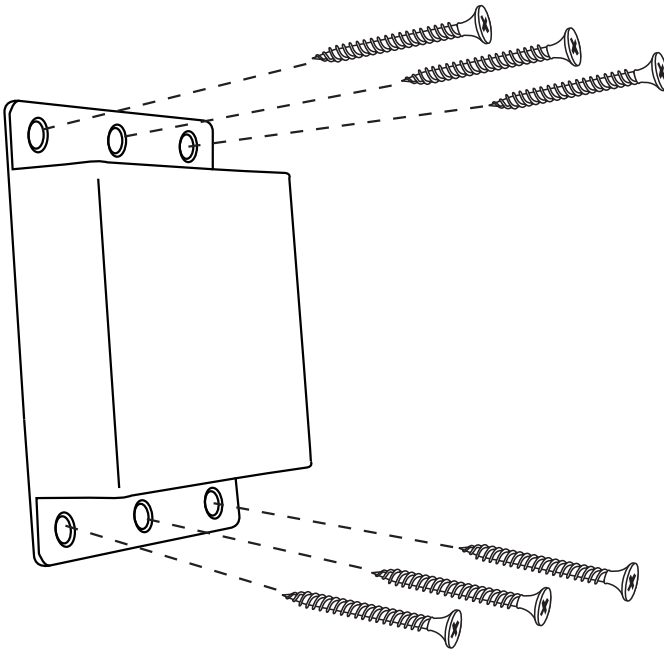


Gefen recommends the TIA/EIA-568-B wiring option. Use the table below when field-terminating cable for use with Gefen products.

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

It is recommended to use one continuous run from one end to the other. Patch cable is not recommended.

## Surface-Mounting Instructions



The Gefen *DisplayPort KVM Extender over CAT-7* can be mounted on any horizontal or vertical flat surface (e.g. wall or inside / outside a cabinet with wood / drywall screws) as shown in the diagram above. There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for connection and disconnection of the DisplayPort cable.

For installation on a drywall surface, use a #6 drywall screw. When installing, it is recommended to use the center hole on a stud.

# Specifications

## Supported Formats

Resolutions (max.)	<ul style="list-style-type: none"> <li>• 2560 x 1600</li> <li>• 1920 x 1200 (WUXGA)</li> <li>• 1080p Full HD</li> </ul>
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## Electrical

Video Data Rate	• Up to 2.7 Gb/s
EQ Switch (Receiver)	• 1 x 16-position rotary type
HPD Auto Calibration button (Receiver)	• 1 x tact-type
Pre-emphasis Switch	• 1 x 3-position DIP switch
Boost Level Switches (Sender)	• 2 x 3-position DIP switch
Drive level Switch (Sender)	• 1 x 3-position DIP switch
Power On Indicator (Sender)	• 1 x LED, blue
Link Indicator (Receiver)	• 1 x bi-color LED Green: Good link, Red: No link
USB Link Indicators (Sender / Receiver)	• 1 x LED, green

## Connectors

Video Input (Sender)	• 1 x DisplayPort, 20-pin, female
Video Output (Receiver)	• 1 x DisplayPort, 20-pin, female
USB (Sender)	• 1 x Type B, female
USB (Receiver)	• 2 x Type A, female
Link (Sender / Receiver)	• 2 x RJ-45, shielded
USB Link (Sender / Receiver)	• 1 x RJ-45, shielded

## Operational

Power Supply	• 1 x 5V DC, locking
Operating Temperature	• +32 to +104 °F (0 to +40 °C)

## Physical

Dimensions (W x H x D) (Sender / Receiver)	• 3.4" x 1.2" x 5.8" (85mm x 30mm x 146mm)
Unit Weight (each unit)	• 0.47 lbs (0.22 kg)





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This product uses UL or CE listed power supplies.