



# DisplayPort Extender over CAT-7

**EXT-DP-CAT7**

**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.

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

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# INTRODUCTION

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Congratulations on your purchase of the DisplayPort Extender over CAT-7. Your complete satisfaction is very important to us.

## **About Gefen**

We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line. Please visit <http://www.gefen.com> for the latest offerings in High-Definition signal solutions or call us between the hours of 8:00 am and 5:00 pm Monday-Friday, Pacific Standard Time for assistance with your A/V needs. We'll be happy to assist you.

## **The Gefen DisplayPort Extender over CAT-7**

The DisplayPort Extender over CAT-7 allows the installation of a HDTV display up to 100 feet (30 meters) away from a Display-Port source using two CAT-7 cables. Resolutions up to 1920 x 1200 (WUXGA) or 1080p Full HD when using a single CAT-7 cable, and up to 2560 x 1600 (WQXGA) when using two cables, can be supported. HDCP is also supported. The Receiver unit is powered by the first CAT-7 cable that extends the DisplayPort signal from the Sender unit, eliminating the need for an external power supply on the Receiver unit.

## **How It Works**

Connect the Sender unit to the DisplayPort source using the included DisplayPort cable. Connect the Receiver unit to the HDTV display using another DisplayPort cable. Connect the Sender unit to the Receiver unit using one or two CAT-7 cables, depending on the maximum required video resolution. Connect the included locking power supply to the Sender unit and an available electric outlet. The Receiver unit is powered by the Link 1 CAT-7 cable and does not require an external power supply. Turn on the power to the source and the display.

# INTRODUCTION

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## **READ THESE NOTES BEFORE INSTALLING OR OPERATING THE DISPLAYPORT EXTENDER OVER CAT-7**

- CAT-7 cables should not exceed 100 feet (30 meters).
- Resolutions up to 1920 x 1200 (WUXGA) or 1080p Full HD are supported when using a single CAT-7 cable. Two CAT-7 cables must be used to support 2560 x 1600 (WQXGA).

# INTRODUCTION

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## Features

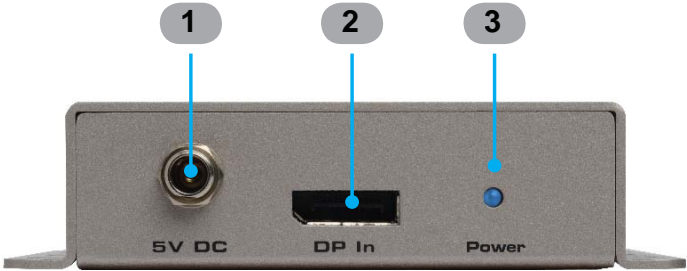
- Extends DisplayPort up to 100 feet (30 meters)
- Supports resolutions up to 2560 x 1600 over two CAT-7 cables, and up to 1920 x 1200 or 1080p Full HD over one CAT-7 cable
- HDCP compliant
- Supports DisplayPort 1.1a
- 16-position EQ rotary switch to compensate for cable skew
- HPD Auto-Calibration button
- Pre-emphasis switch
- Drive level switch
- Boost level switches
- Power On and Link indicators
- Locking power supply
- Surface-mountable

## Package Includes

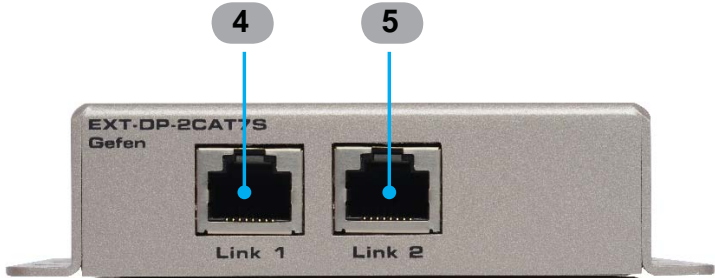
- (1) DisplayPort Extender over CAT-7 (Sender unit)
- (1) DisplayPort Extender over CAT-7 (Receiver unit)
- (1) 6 ft. DisplayPort cable (M-M)
- (1) 5V DC power supply
- (1) Quick Start Guide

# INTRODUCTION

## Sender Unit Layout



Back



Front



# INTRODUCTION

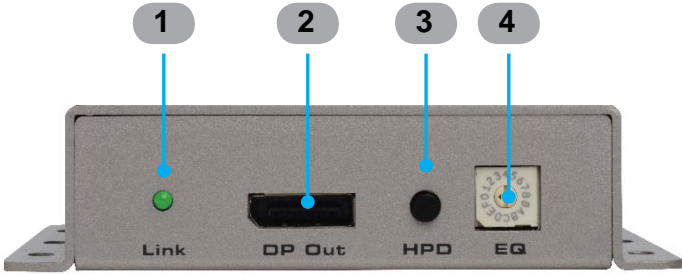
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## Sender Unit Descriptions

- 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** ***Link 1***  
Connect a CAT-7 cable up to 100 feet (30 meters) from this jack to the Link 1 jack on the Receiver unit.
- 5** ***Link 2***  
Connect a CAT-7 cable up to 100 feet (30 meters) from this jack to the Link 2 jack on the Receiver unit.

# INTRODUCTION

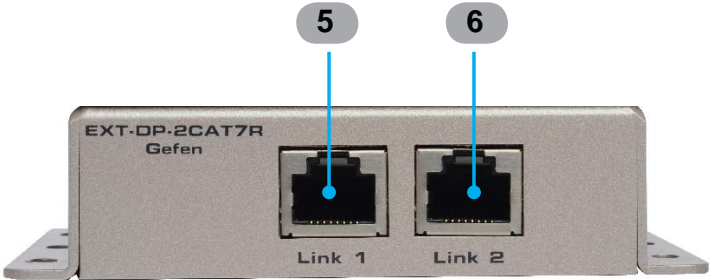
## Receiver Unit Layout



Back



Top



Front

# INTRODUCTION

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## Receiver Unit Descriptions

**1** *Link*

This LED indicator will glow bright green when the Sender and Receiver unit are connected using two CAT-7 cables. The Sender unit must be powered.

**2** *DP Out*

Connect a DisplayPort cable from this port to the display.

**3** *HPD*

Press this button to cycle the HPD line on the Receiver unit.

**4** *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 page 12 for more information.

**5** *Link 1*

Connect a CAT-7 cable up to 100 feet (30 meters) from this jack to the Link 1 jack on the Receiver unit.

**6** *Link 2*

Connect a CAT-7 cable up to 100 feet (30 meters) from this jack to the Link 2 jack on the Receiver unit.

# CONNECTING THE DISPLAYPORT EXTENDER OVER CAT-7

## Connections

1. Use the included DisplayPort cable to connect the DisplayPort source to the **DP In** port on the Sender unit.
2. Connect the display to the Receiver unit using a DisplayPort cable.
3. Connect two CAT-7 cables between the Sender and Receiver units. Each connector on the Sender and Receiver unit is identified as **Link 1** and **Link 2**. When connecting the CAT-7 cables, make sure that each CAT-7 cable that is connected to the Sender unit is connected to the corresponding jack on Receiver unit (e.g. Link 1 --> Link 1, Link 2 --> Link 2).



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

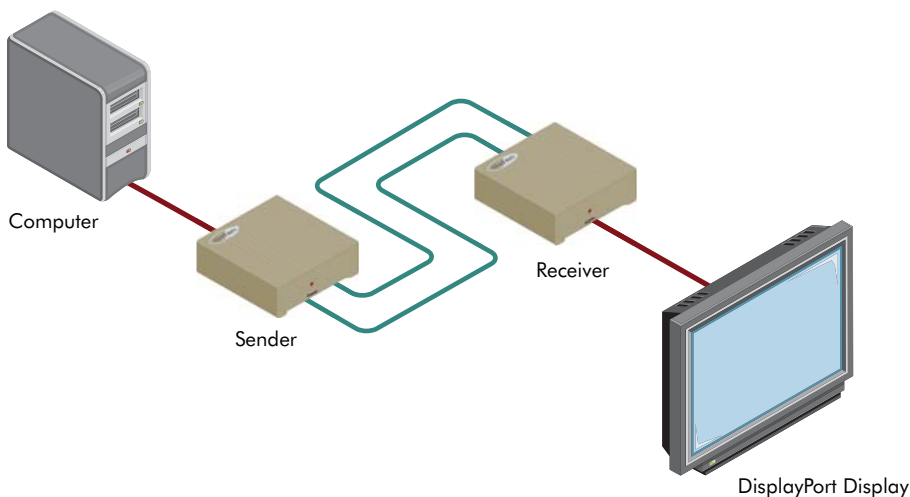
If only a single CAT-7 cable will be used, the CAT-7 cable must be connected between the **Link 1** connectors on both the Sender and Receiver unit. This same CAT-7 cable is used to power the Receiver unit.

4. Connect the included 5V DC locking power supply to the Sender unit. Do not overtighten the locking connectors. Plug the AC power cord from the power supply to an available electrical outlet.

## Wiring Diagram



**CAT-7 CABLE**   
**DISPLAYPORT CABLE** 








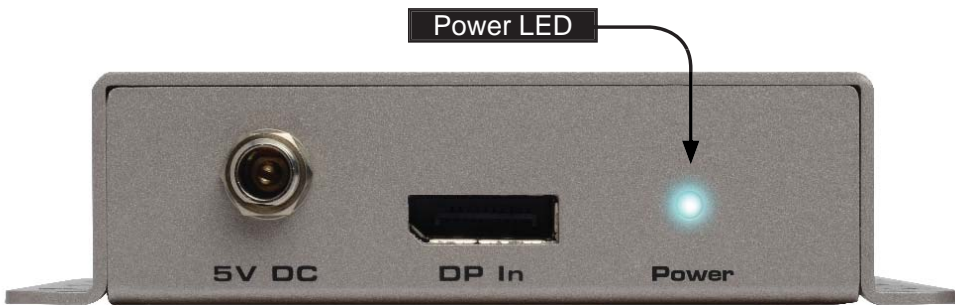
**EXT-DP-2CAT7**

# OPERATING THE DISPLAYPORT EXTENDER OVER CAT-7

## LED Indicators

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

LED	Status	Condition
Power	Solid blue 	• Power connected to the Sender unit.
	OFF 	• No power supplied to the Sender unit.
Link	Solid green 	• DisplayPort Extender over CAT-7 is operating correctly.
	Solid red 	• No DisplayPort source connected or source not active. • Receiver unit not connected to display.
	Flashing red 	• Receiver is attempting to establish a link with the Sender unit.



Sender unit

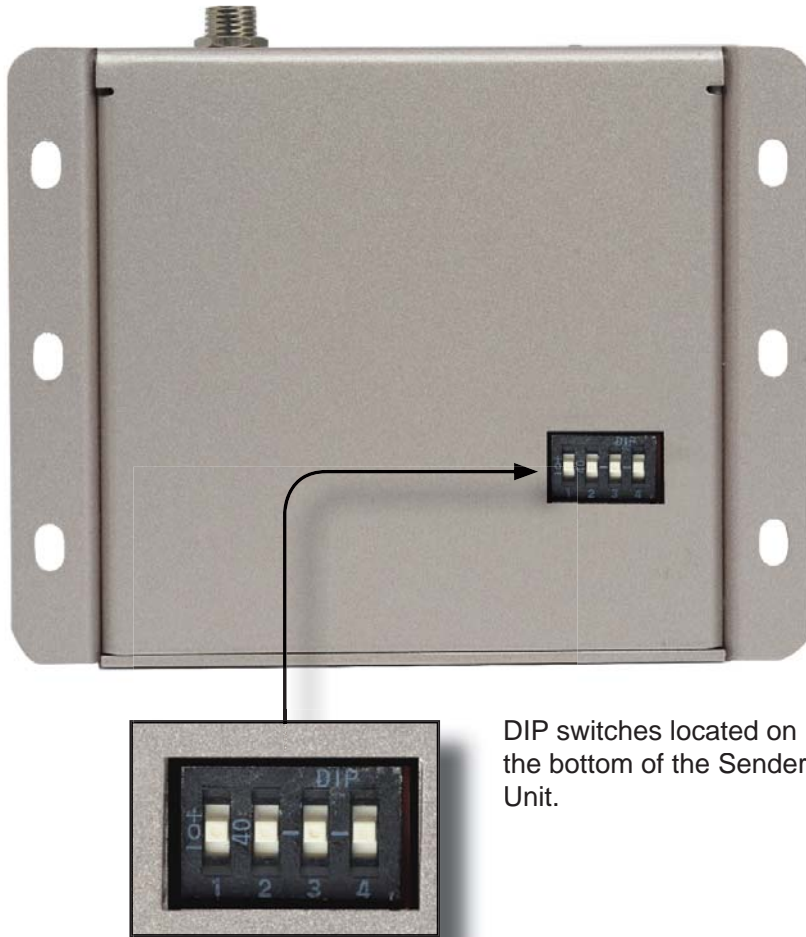


Receiver unit

# OPERATING THE DISPLAYPORT EXTENDER OVER CAT-7

## DIP Switch Configuration

The DisplayPort Extender 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.



DIP switches located on the bottom of the Sender Unit.

### *DIP Switch 1 - Differential Output Voltage Select*

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

# OPERATING THE DISPLAYPORT EXTENDER OVER CAT-7

## DIP Switch 2 - Pre-Emphasis Select (Default = OFF)

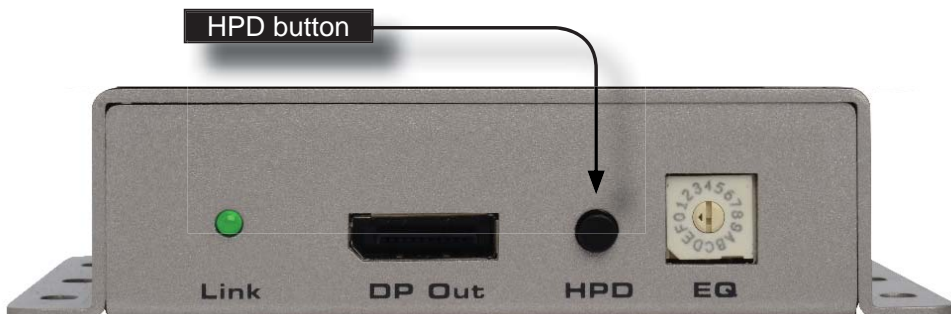
DIP Switch Position	Pre-Emphasis
ON	9 dB
CENTER	6 dB
OFF (default)	0 dB

## DIP Switch 3 and 4 - Boost Level for Main Link of Sender

DIP switch 3 (default = CENTER)	DIP switch 4 (default = OFF)	Boost Level (dB) @ 5 GHz
OFF	OFF	2.7 to 7.3
OFF	ON	12.2 to 16.6
ON	OFF	20.6 to 24.8
ON	ON	27.6 to 28.9

## HPD Button

The DisplayPort 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.

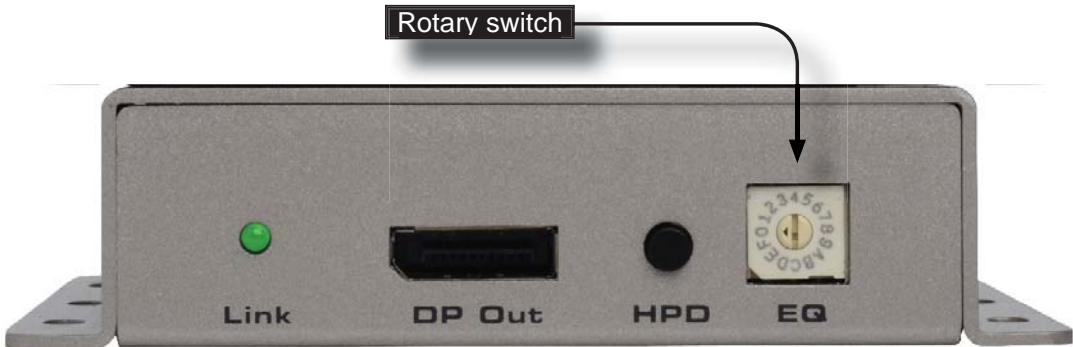


# OPERATING THE DISPLAYPORT EXTENDER OVER CAT-7

## Adjusting the Signal Quality

The *DisplayPort 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.



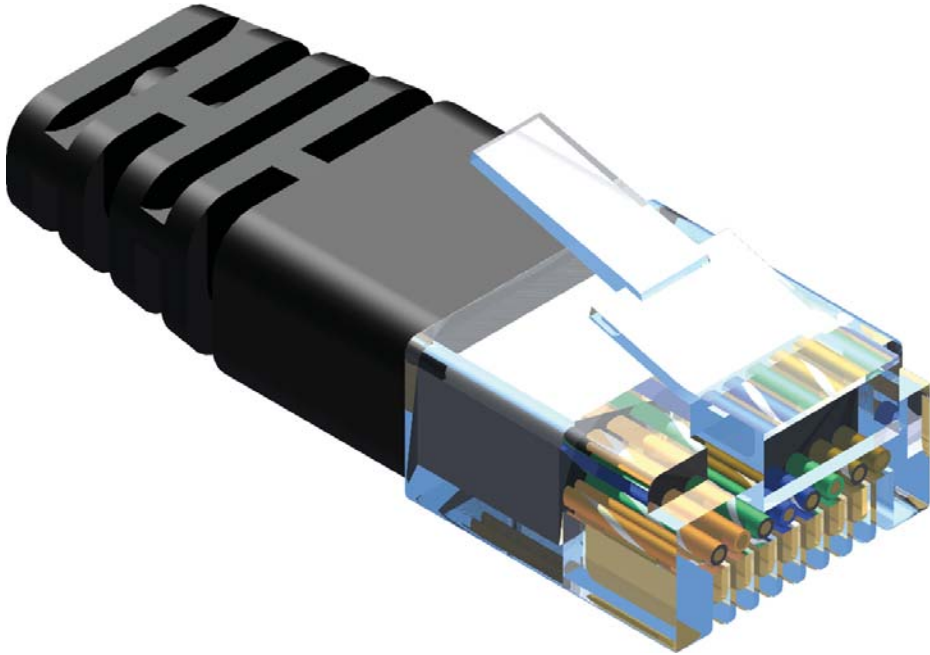
The table below provides examples of various cable types and lengths for CAT-6 cabling.

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.



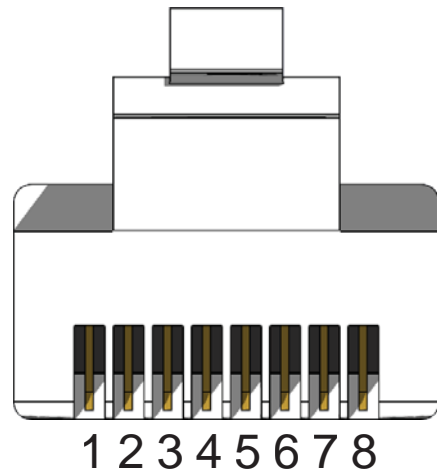
## CABLE TERMINATION



Gefen has specifically engineered products to work with the TIA/EIA-568B 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.

### TIA/EIA-568B Termination

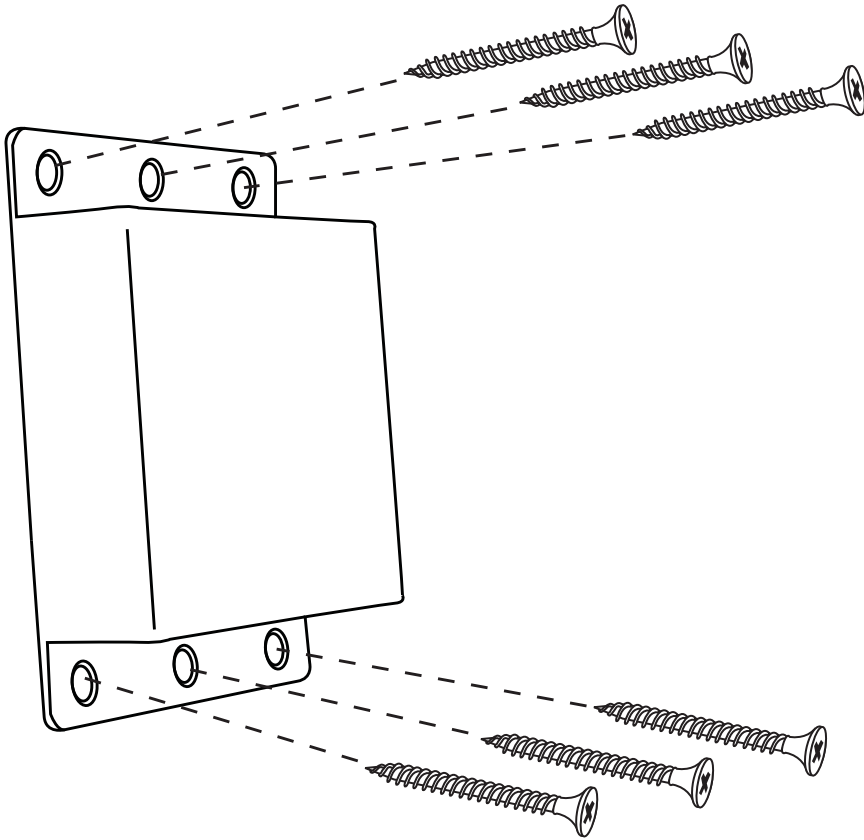
Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown



Each cable run must consist of a single undivided segment of CAT-7 cabling from the Sender unit to the Receiver unit. Punch-down blocks or splices will not work.

## SURFACE MOUNTING INSTRUCTIONS

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The Gefen *DisplayPort 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

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Video Data Rate.....	up to 2.7 Gbps
Video Output Voltage.....	1.2V p-p
Video Input Connector (Sender).....	(1) DisplayPort, 20-pin, female
Video Output Connector (Receiver).....	(1) DisplayPort, 20-pin, female
Link Connectors (Sender/Receiver).....	(2) RJ-45, shielded
EQ Switch (Receiver).....	(1) 16-position rotary type
HPD Auto Calibration button (Receiver).....	(1) tact-type
Pre-emphasis switch (Sender).....	(1) 3-position DIP switch
Drive level switch (Sender).....	(1) 3-position DIP switch
Boost level switch (Sender).....	(2) 3-position DIP switch
Power On indicator (Sender).....	(1) LED, blue
Link indicator (Receiver).....	(1) LED, green: good link, red: no link
Power Supply connector (Sender).....	(1) 5V DC, locking type
Operating Temperature.....	+32 to +104 °F (0 to +40 °C)
Dimensions (W x H x D) (Sender/Receiver).....	4.3" x 1" x 3.3" (110mm x 25mm x 83mm)
Shipping Weight.....	2.2 lbs (1 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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**www.gefen.com support@gefen.com**



This product uses UL listed or CE compliant power supplies.