

# Gefen

## DVI CAT-5 MS EXTREME

EXT-DVI-CAT5-MS  
USER MANUAL



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

1080P  
PROGRESSIVE

HDTV

Blu-ray Disc

## ASKING FOR ASSISTANCE

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### Notice

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**Rev B**

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## OPERATION NOTES

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### READ THESE NOTES BEFORE INSTALLING OR OPERATING THE DVI CAT-5 MS EXTREME EXTENDER

- The DVI CAT-5 MS Extreme units are housed in a metal box for better RF shielding.
- Your CAT-5 cable should not exceed 300 feet.
- If you do not need DDC or HDCP data you can use a single CAT-5 cable for the video only. The DDC link connector will not be used. (For further information, see our Terminology section on page 10.) If HDCP is required, both CAT-5 cables must be used between the sender and receiver units.
- If the source requires EDID present, you can use the Gefen DVI Detective to provide EDID information to your source but will not transmit HDCP.
- Shielded CAT-6 with metal RJ-45 connectors is recommended to protect from random flashes caused by EMI.
- Power supply for the receiver should not be connected unless you are using one CAT-5 or going over a distance of 200ft.
- Extensions over 130ft. require you to manually EQ your signal (see page 4).
- Extensions under 130ft. use Auto EQ (which is on by default) (see page 4).
- The extender is factory set to Auto EQ which will work for distances under 130 ft.
- This product features the option to force the output colorspace to RGB and/or use a pre-programmed EDID. These features can be used to resolve specific user issues or for troubleshooting purposes. Please see page 6 for more information.

# INTRODUCTION

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The DVI CAT-5 MS Extreme sender unit sits next to your computer, DVD player or any set-top box with a DVI output. The cable supplied with the DVI CAT-5 MS Extreme connects your DVI source to the sender unit. The DVI CAT-5 MS Extreme receiver unit sits next to your DVI display - up to 300 feet away. The display plugs into the back of the DVI CAT-5 MS Extreme receiver unit. Two CAT-5 cables connect the receiver and sender units to each other.

## CONTENTS

The DVI CAT-5 MS Extreme system consists of:

- (1) DVI CAT-5 MS Extreme-S (Sender Unit)
- (1) DVI CAT-5 MS Extreme-R (Receiver Unit)
- (1) 6 ft DVI to DVI Cable M-M
- (2) Wall Mounting Plates
- (2) 5V DC Power Supply
- (1) User's Manual



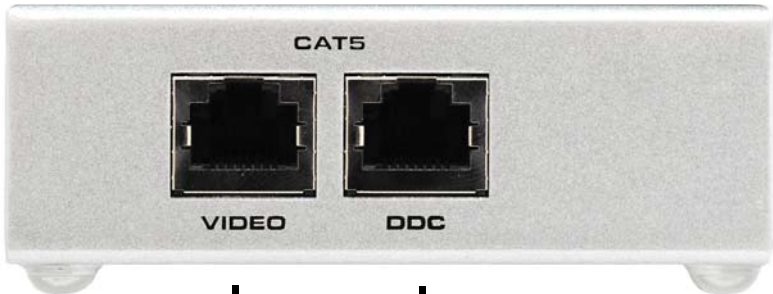
# DVI CAT-5 MS EXTREME SENDER FRONT PANEL DESCRIPTIONS



Connects to 5 Volt  
power supply

DVI Input connects to  
DVI source

Power Indicator



CAT-5 carries  
TMDS signals

CAT-5 carries  
DDC/HDCP signals

**DVI CAT-5 MS EXTREME RECEIVER FRONT PANEL DESCRIPTIONS**



EQ trimpot

Connects to DVI display

Connects to 5 Volt power supply

Power Indicator



CAT-5 carries DDC/HDCP signals

CAT-5 carries TMDS signals

## HOW TO CONNECT THE DVI CAT-5 MS EXTREME

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- 1 Connect your display to the DVI CAT-5 MS Extreme receiver unit.
- 2 Connect your source to the DVI CAT-5 MS Extreme sender unit.
- 3 Connect your CAT-5 cables between the sender and the receiver.
- 4 Plug the 5V power supply into the DVI CAT-5 MS Extreme sender and receiver unit.
- 5 You should now have picture. If you do not see a picture, try unplugging and re-plugging the DVI input on the DVI sender unit. Make sure your CAT-5 cables are not crossed. Power-cycle the unit.

\* If any problems arise please refer to the troubleshooting page (see page 9).

## HOW TO USE THE EQ TRIMPOT

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The EQ trimpot is used extensions over 130 ft. By default, the DVI CAT-5 MS Extreme comes set to "Auto EQ" (with DIP switch 1 OFF). Underneath the receiver is a bank of DIP switches, hidden by a blank sticker, and if you flip DIP switch 1 ON you can turn off the "Auto EQ" so that you can manually EQ your signal by using the EQ trimpot on the receiver. If you flip DIP switch number 1 back to the OFF position you can set the DVI CAT-5 MS Extreme back to "Auto EQ". Auto EQ works best when the sender is set to "NO BOOST" (see page 5). Auto EQ also works best up to 130 ft reliably. If you are using the DVI CAT-5 MS Extreme beyond any distance of 130 ft., then it is best if you manually EQ your signal.

## USING THE TRIMPOT

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- 1 Have both of your CAT-5 or CAT-6 cables connected.
- 2 Start by having the source connected and turning on the display.
- 3 Set the sender to medium boost.
- 4 Start with the Trimpot all the way counter clockwise and slowly turn the Trimpot clockwise.

If you do not get a picture still or have noise, set the sender to high boost and try to re-EQ your signal.



## SERVICE SWITCH USAGE GUIDE

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The sender unit of the Gefen DVI CAT-5 MS Extreme contain a set of service switches (also called DIP switches) located underneath the unit. Peeling back the silver sticker on the bottom of the unit will reveal the service switch bay. These service switches are used to boost the signal to best match the conditions in your setup. (\*Note: Adjustments should be done with sources and display on.)

<b>Sender DIP Switch Settings</b>		
<b>Setting</b>	<b>Switch 1</b>	<b>Switch 2</b>
No Boost (Default)	OFF	ON
Normal Boost	OFF	OFF
Strong Boost	ON	OFF

<b>Receiver DIP Switch Settings</b>		
<b>Setting</b>	<b>Switch 1</b>	<b>Switch 2</b>
Manual EQ	ON	OFF
Auto EQ (Default)	OFF	OFF

Adjustment Guidelines:

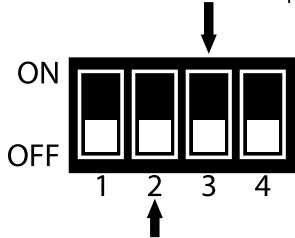
- 1) Strong boost should not be used on stranded cables. Strong boosting will cause pixels or no picture on these cables.
- 2) Using the wrong settings will not damage the units; it will either produce no image or a noisy image.
- 3) To eliminate the possibility of crosstalk and interference, cables must be terminated with 568B scheduling. (See page 7 for details)
- 4) No Boost should be set when using Auto EQ.

## ADDITIONAL DIP SWITCH FUNCTIONS

### FORCE RGB AND PRE-PROGRAMMED EDID FEATURES

DIP switch 1 on the 4-bank DIP switch located on the underside of receiver unit enables and disables the automatic equalization function. Additional features can be enabled by using the other DIP switches on this bank.

Enabling DIP switch 3 will force the use of a pre-programmed EDID



Enabling DIP switch 2 will force RGB on the output

### FORCING THE RGB COLORSPACE

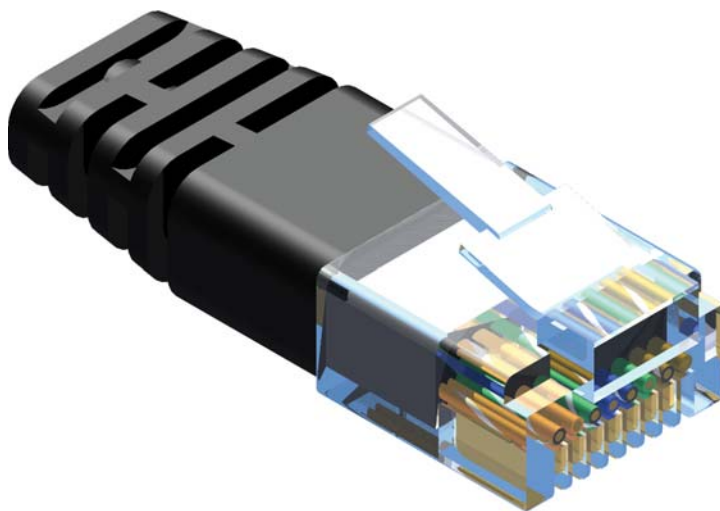
In some cases, the output video may have a pink or green tint. This usually is attributed to the output device (i.e. display) not supporting the colorspace being used by the source device. All digital displays will handle the standard RGB colorspace. DIP switch 2 can be enabled to force the output colorspace to RGB. If the input colorspace is YCbCr, the colorspace will be converted to RGB prior to output on the receiver unit.

### USING THE PRE-PROGRAMMED EDID

In some cases it may be necessary to force an EDID for troubleshooting purposes. Enabling DIP switch 3 will force the use of a pre-programmed EDID to be sent to the source instead of the connected output device (i.e. display). The EDID specifics are listed below.

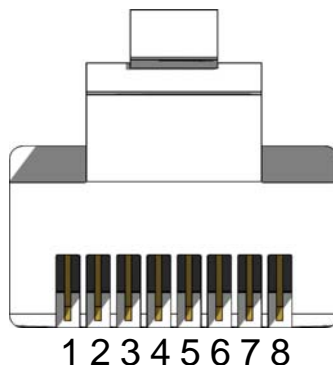
Resolution	Timing
640x480	60Hz
720x480i/p	59.94/60Hz
720x576i/p	50Hz
1280x720p	50Hz
1280x720p	59.94/60Hz
1920x1080i/p	50Hz
1920x1080i/p	59.94/60Hz

## NETWORK CABLE WIRING DIAGRAM



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

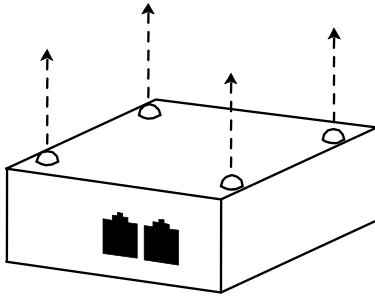
Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown



CAT-5, CAT-5e, and CAT-6 cabling comes in stranded and solid core types. Gefen recommends using solid core cabling. CAT-6 cable is also recommended for best results.

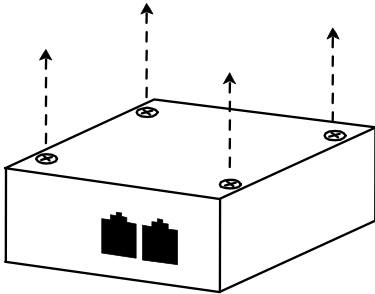
Each cable run must be one continuous run from one end to the other. No splices or use of punch down blocks.

# Mounting Plate Installation



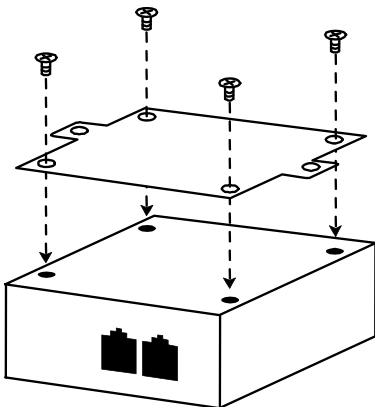
**1**

Remove the rubber feet covering the screws off the bottom of the unit.



**2**

Remove the screws.



**3**

Line up the mounting plates and screw it on to the unit.

## Frequently Asked Questions

### ***What kind of CAT-5e cable should I be using?***

Solid core CAT-5e cable rated at 350 MHz and terminated in 568a or 568b is the minimum requirement. For resolutions greater than 1280x1024 or 1080i, Gefen recommends solid shielded CAT-6 cables.

### ***I'm getting no video on the screens, what can I check?***

First thing to check is make sure that the video CAT-5 is linked to the other video CAT-5 port and the same with the DDC ports. Try removing the power supply from the receiver side, if the power light turns off then you have your CAT-5 cables crossed. In some setups with grounding issues you will not get a picture with the receiver powered. Test to make sure the units are working with short CAT-5e cables 15-20 feet. You can also make sure you have the correct boost setting configured (refer to page 5). If you are getting no video or noise you can also try setting the DVI CAT-5 Extreme to Auto EQ or manually EQ your signal. (see page 4)

### ***Occasionally the picture blanks out, how do I fix this?***

Flickering or a blinking image is the result of a loss of sync between the display and the source. Try lowering the resolution to see if that helps, if it does, the CAT-5 cables you are using are unable to handle the bandwidth of the higher resolution and thus you are losing sync. Try a shielded CAT-6 cable on the video line to reduce interference. Usually this is caused by EMI and a shielded CAT-6 with metal RJ-45 connectors with the drain wire soldered to the connectors will resolve the issue. You can also try adjusting the service switches. Please refer to the service switch guide on page 5 for the different combinations. Also eliminate any patch panels and wall plates. Patch panels and wall plates are prone to EMI if they are not shielded properly.

### ***Why is there a green or pink tint to my picture?***

A tint of green or pink in the picture is a result of incorrect color space being transmitted. This can be resolved by forcing the RGB colorspace. Please refer to page 6 for more information on how to force the output to RGB colorspace.

## TERMINOLOGY

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### **CAT-5**

Category 5 cable, commonly known as CAT-5, is an unshielded twisted pair type cable designed for high signal integrity. The actual standard defines specific electrical properties of the wire, but it is most commonly known as being rated for its Ethernet capability of 100 Mbit/s. Its specific standard designation is EIA/TIA-568. CAT-5 cable typically has three twists per inch of each twisted pair of 24 gauge copper wires within the cable.

### **CAT-5e**

Similar to CAT-5 cable, but is enhanced to support speeds of up to 1000 Megabits per second.

### **DDC**

Short form for Display Data Channel. It is a VESA standard for communication between a monitor and a video adapter. Using DDC, a monitor can inform the video card about its properties, such as maximum resolution and color depth. The video card can then use this information to ensure that the user is presented with valid options for configuring the display.

### **DDWG**

Digital Display Working Group DDWG are the creators of the DVI specification.

### **DVI**

Digital Visual Interface. A digital video standard established by the DDWG, which was designed to carry uncompressed digital video signals to a display.

### **HDMI**

The High-Definition Multi-media Interface (HDMI) is an industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any compatible digital audio/video source, such as a set-top box, DVD player, and A/V receiver and a compatible digital audio and/or video monitor, such as a digital television (DTV).

### **HDCP**

High-Bandwidth Digital Content Protection. Created by Intel, HDCP is used with HDTV signals over HDMI and HDMI connections and on D-Theater D-VHS recordings to prevent unauthorized duplication of copy written material.

### **HDTV**

High-Definition Television. The high-resolution subset of our DTV system. The ATSC defines HDTV as a 16:9 image with twice the horizontal and vertical resolution of our existing system, accompanied by 5.1 channels of Dolby Digital audio. The CEA defines HDTV as an image with 720 progressive or 1080 interlaced active (top to bottom) scan lines. 1280:720p and 1920:1080i are typically accepted as high-definition scan rates.

### **VESA**

Video Electronic Standards Association, a consortium of manufacturers formed to establish and maintain industry wide standards for video cards and monitors. VESA was instrumental in the introduction of the Super VGA and Extended VGA video graphics standards with a refresh rate of 70 Hz, minimizing flicker and helping to reduce user eyestrain and fatigue.

## SPECIFICATIONS

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Single Link Bandwidth.....	165 MHz
Single Link Resolution.....	1080p/60Hz, 1920 x 1200
Input Video Signal.....	1.2 Volts p-p
Input DDC Signal.....	5 Volts p-p (TTL)
Input/Output DVI Connector.....	DVI-I (29 pin) female (Digital Only)
Link Connector.....	RJ-45
Power Supply.....	5V DC
Power Consumption.....	10 Watts (max) per unit
Dimensions.....	3.1"D x 3.2"W x 1.1"H
Shipping Weight.....	4lbs.