

Extend DVI up to 300 feet over CAT-5

Optional Accessories



CAT-5 Cables



DVI Cables



DVI Detective (discontinued)

DVI CAT-5 MS Extreme Extender

Extends DVI up to 300 feet over two CAT-5 cables.

The DVI CAT-5 MS Extreme extends your DVI display up to 300 feet away from your DVI or HDMI™ source using cost effective CAT-5 cables.

How It Works

The DVI CAT-5 Extreme sender unit sits next to your computer, DVD player or any set-top box. The cable supplied with the DVI CAT-5 MS Extreme connects your DVI source to the sender. The DVI CAT-5 MS Extreme receiver 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. Two CAT-5e cables connect the sender and the receiver units to each other.

Note: The DVI CAT-5 MS Extreme is fully HDCP compliant.

DVI, HDCP & HDMI Defined

Features:

- Improved compensation for cable skew
- Uses CAT-5e cable for DDC and control signals
- Extends any DVI (digital visual interface) compliant device up to 300 feet from the computer
- 300 ft extension at 1280x1024/1080i
- 150 ft extension at 1920x1200/1080p
- Saves space on your desktop and increases productivity
- Eliminates computer noise where you work
- Supports VESA Standard resolutions and HDTV resolution
- Supports DDWG standard for DVI compliant monitors
- Installs in minutes

Specifications:

- Video Amplifier Bandwidth: 165 MHz
- Single Link Range: 1080P/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: 20 Watts (max)
- Dimensions: 3.4"D x 3.25"W x 1.25"H
- Shipping Weight: 3 Lbs.

Package Includes:

- One DVI CAT-5 Extreme-S
- One DVI CAT-5 MS Extreme-R
- One 6 foot DVI cable
- Two 5V Power Supplies
- User's Manual



EXT-DVI-CAT5-MS

Gefen

DVI CAT-5 MS EXTREME USER MANUAL



www.gefen.com

ASKING FOR ASSISTANCE

Technical Support:

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Technical Support Hours:

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Notice

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

The DVI CAT-5 MS Extreme is a trademark of Gefen Inc.

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OPERATION NOTES

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 will not be connected. (For further information, see our Terminology section on page 9.) 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 CAT6 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 CAT5 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.

INTRODUCTION

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 MSR 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 MSR Extreme receiver unit. Two CAT-5 cables connect the DVI CAT-5 Extreme-S and the DVI CAT-5 MSR Extreme-R units to each other.

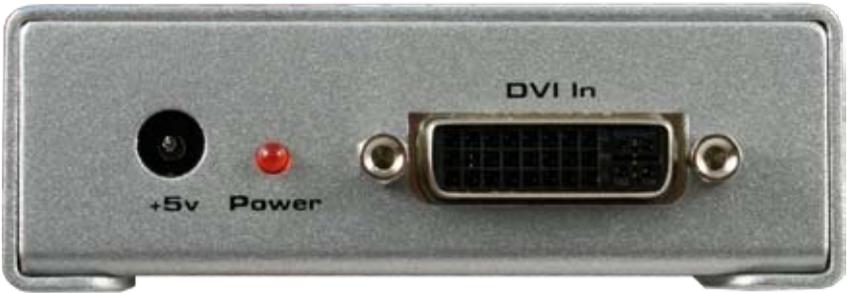
CONTENTS

The DVI CAT-5 MSR Extreme system consists of:

- (1) DVI CAT-5 Extreme-S
- (1) DVI CAT-5 MSR Extreme
- (1) 6 ft DVI to DVI Cable M-M
- (2) DVI CAT5 Wall mounts
- (2) 5V DC power supply
- (1) User's Manual



DVI CAT-5 EXTREME SENDER FRONT PANEL DESCRIPTIONS



Connects to 5 volt power supply

Power Indicator

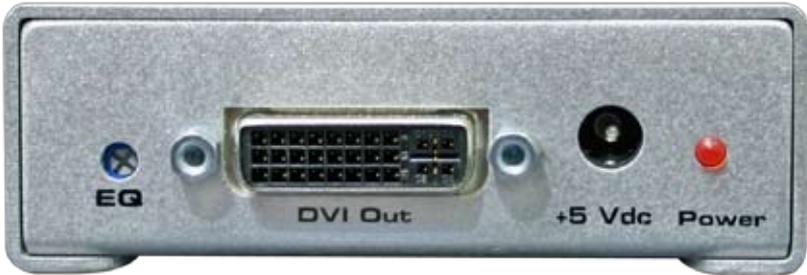
DVI Input connects to DVI source



CAT-5 carries TMDS signals

CAT-5 carries DDC/HDCP signals

DVI CAT-5 MSR EXTREME RECEIVER FRONT PANEL DESCRIPTIONS



EQ trim pod

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

- 1 Connect your display to the DVI CAT-5 MSR Extreme receiver unit.
- 2 Connect your source to the DVI CAT-5 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 MSR 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. Recycle the power on the unit.

* If any problems arise take a look at the troubleshooting page (see page 8).

HOW TO USE THE EQ TRIM POT

The EQ trim pot is used extensions over 130 ft. By default, the DVI 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 trim pot on the receiver. If you flip dip switch number 1 back to the OFF position you can set the DVI 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 CAT5 Extreme beyond any distance of 130 ft., then It is best if you manually EQ your signal.

USING THE TRIMPOT

- 1 Have both of your CAT5 or CATs6 cables connected.
- 2 Start by having the source connected and playing with your display on.
- 3 Set the sender to medium boost.
- 4 Start with the trimpot all the way counter clockwise and slowly turn the trim pot 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

The sender unit of the Gefen CAT5 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. Switches 3 and 4 are not used.)

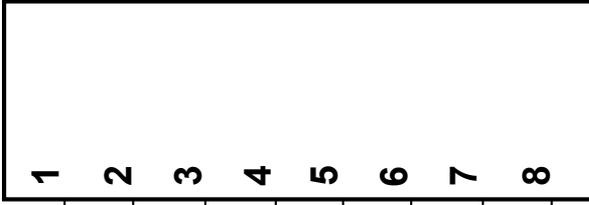
Sender Dip Switch Settings		
Setting	Switch 1	Switch 2
No Boost	OFF	ON
Normal Boost (Default)	OFF	OFF
Strong Boost	ON	OFF

Receiver Dip Switch Settings		
Setting	Switch 1	Switch 2
Manual EQ	ON	OFF
Auto EQ	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 cross talk and interference, cables must be terminated with 568B scheduling. (See page 6 for details)
- 4) No Boost should be set when using Auto EQ.

RJ-45 Jack



White/Orange

Orange

White/Green

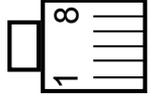
Blue

White/Blue

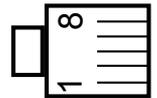
Green

White/Brown

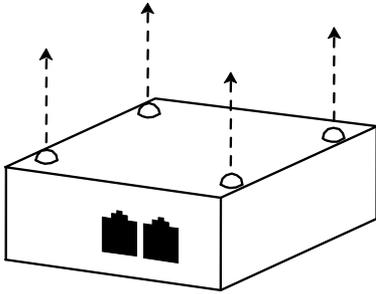
Brown



RJ-45 Jack

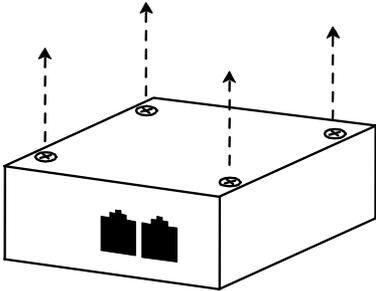


Mounting Plate Installation



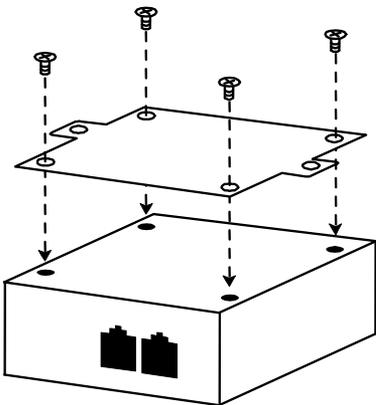
1

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 CAT5 is linked to the other video CAT5 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 CAT5 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 recycling power on your devices including the extender. If this does not help, the DDC data containing the color space is not being transmitted correctly due to loss in the CAT5 cable, try replacing the DDC cable.

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 HDMI specification.

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

Single Link Bandwidth.....	165 MHz
Single Link Range.....	1080P/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.....	20 Watts (max)
Dimensions.....	3.4"D x 3.25"W x 1.25"H
Shipping Weight.....	3 Lbs.