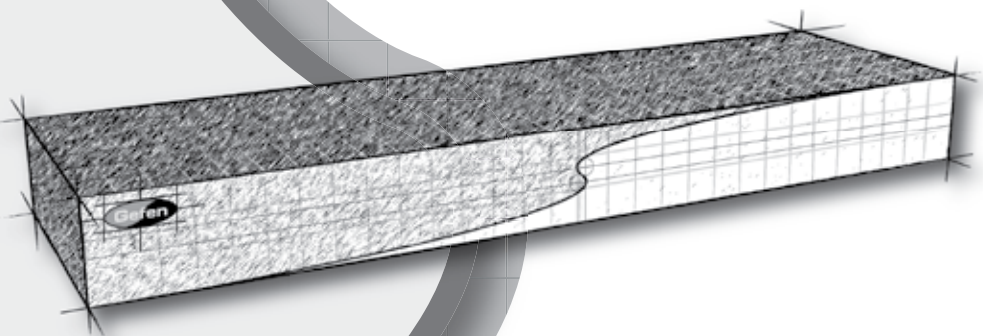


Gefen

DVI CAT5 4X Extender USER MANUAL



www.gefen.com

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Notice

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INTRODUCTION

Thank you for purchasing the DVI CAT5 4X Extender.

The DVI CAT5 4X Extender can extend 4 single link (1920 x 1200) DVI sources to 4 displays up to 300ft away.

The 4x4 DVI CAT5 Distribution Amplifier is the perfect solution for anyone who needs to send multiple sources to multiple displays in remote locations at the same time.

The DVI CAT5 4X Extender has 4 DVI single link inputs with 8 (2 per display) RJ45 output ports. Each pair of CAT5e cables will extend out to a single receiver with 2 RJ45 inputs and one DVI output port for your display. This will allow you to extend 4 separate video signals to 4 remote locations.

OPERATION NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE DVI CAT5 4X Extender

- The DVI CAT5 4X Extender and DVI CAT5 MSR units are housed in a metal box for better RF shielding.
- Your CAT5e cables should not exceed 300 feet.
- If you do not need DDC or HDCP data you can use a single CAT5e 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 CAT5e cables must be used between the sender and receiver units.
- If you are using a single CAT5e cable and the source requires EDID present, you can use the Gefen DVI Detective to provide EDID information to your source. The DVI Detective will not transmit HDCP.
- Shielded CAT5e or CAT6 with metal RJ-45 connectors is recommended to protect from random video flashes caused by EMI.
- Power supply for the receiver should not be connected unless you are using one CAT5e or going over a distance of 180ft.
- Extensions over 130ft. require you to manually EQ your signal (see page 5).
- Extensions under 130ft. use Auto EQ (which is on by default) (see page 5).

NOTE: The DVI CAT5 4X Extender is fully HDCP compliant

FEATURES

Features:

- Allows 4 DVI single link sources to be extended up to 300ft.
- Maintains resolutions up to 1080p, 2K, and 1920x1200
- Maintains highest DVI single link video resolution
- DVI or HDMI to DVI cables are used to connect the inputs and outputs of the matrix

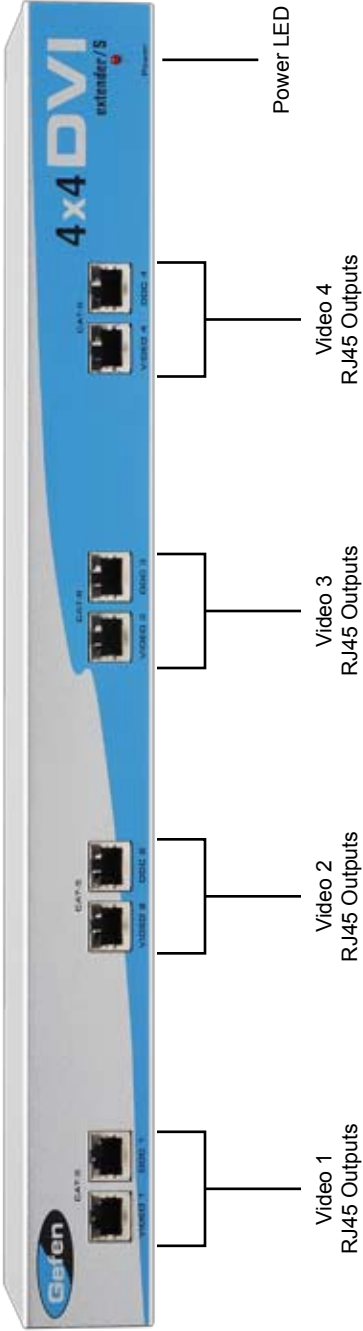
INCLUDES:

- (1) EXT-DVI-CAT5-4X
- (4) EXT-DVI-CAT5MSR
- (4) 6 ft DVI to DVI Cable M-M
- (1) 24V DC power supply
- (4) 5V DC power supply
- (1) Rack Ears

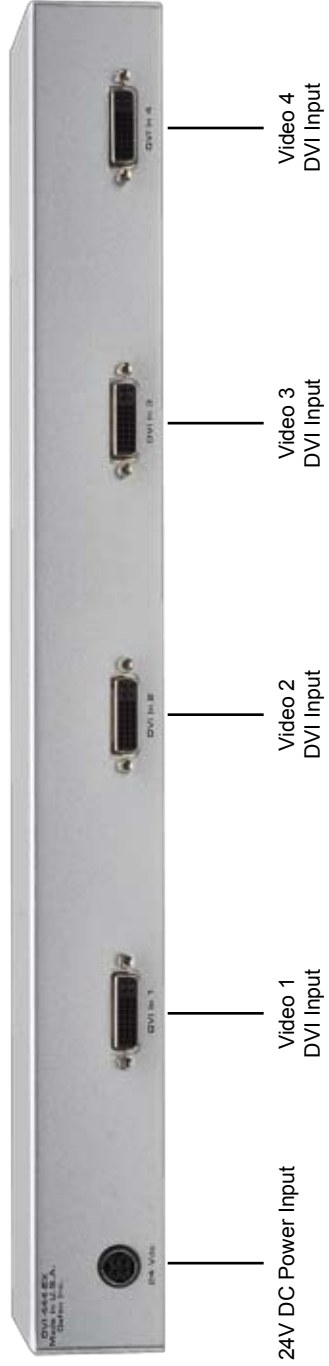


EXT-DVI-CAT5-4X SENDER PANEL DESCRIPTIONS

FRONT



BACK



EXT-DVI-CAT5MSR RECEIVER 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 EXT-DVI-CAT5-4X

- 1 Connect your source(s) to the EXT-DVI-CAT5-4X sender unit's DVI input(s).
- 2 Connect your display(s) to the EXT-DVI-CAT5MSR receiver unit's DVI output(s).
- 3 Connect both CAT5e cables (DDC and Video) between the sender and the receiver
- 4 Plug the 24V power supply into the EXT-DVI-CAT5-4X sender.

If you are not receiving a video signal, follow the steps below to manually equalize the signal.

HOW TO USE THE EQ TRIM POT

The EQ trim pot is used for extensions over 130 ft. By default, the DVI CAT5 MSR receivers come set to "Auto EQ" (with dip switch 1 ON). Underneath the receiver is a bank of dip switches hidden by a blank sticker. If you flip dip switch 1 OFF 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 to the ON position you can set the DVI CAT5 MSR to "Auto EQ". Auto EQ works only when the sender is set to "NO BOOST" (see page 6). Auto EQ works reliably up to 130ft. If you are using the DVI CAT5 MSR beyond any distance of 130 ft. you will have to manually EQ your signal.

USING THE TRIMPOT

- 1 Have both of your CAT5e or CAT6 cables connected.
- 2 Start by having the source connected and playing with your display on.
- 3 Start with the trimpot turned all the way counter clockwise and slowly turn the trim pot clockwise until the image stabilizes and displays no noise.

If you still do not get a picture or have video noise, set the sender's to medium boost and try to re-EQ your signal. If that still does not work try the high boost setting.

DIP SWITCH GUIDE

The EXT-DVI-CAT5-4X and EXT-DVI-CAT5MSR products both contain a set of service switches (also called dip switches) located underneath each unit. The EXT-DVI-CAT5-4X has 4 sets of DIP switches, one for each input, while the EXT-DVI-CAT5MSR has a single bank of DIP switches. Peeling back the silver sticker on the bottom of either unit will reveal the DIP switch bank. These service switches are used to boost and equalize 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
Undefined	ON	ON

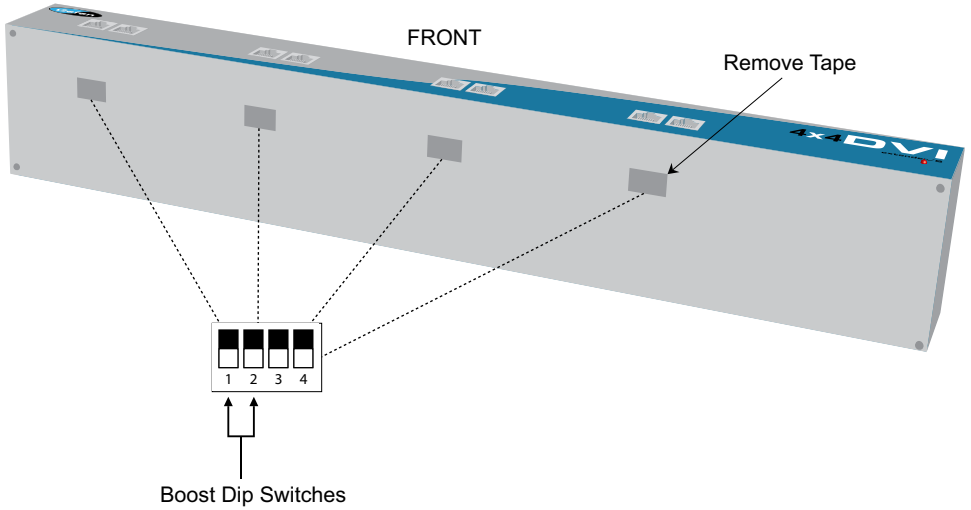
Receiver Dip Switch Settings		
Setting	Switch 1	Switch 2
No EQ (Default)	OFF	OFF
EQ Setting 2	ON	OFF
EQ Setting 3	OFF	ON
Maximum EQ	ON	ON

Adjustment Guidelines:

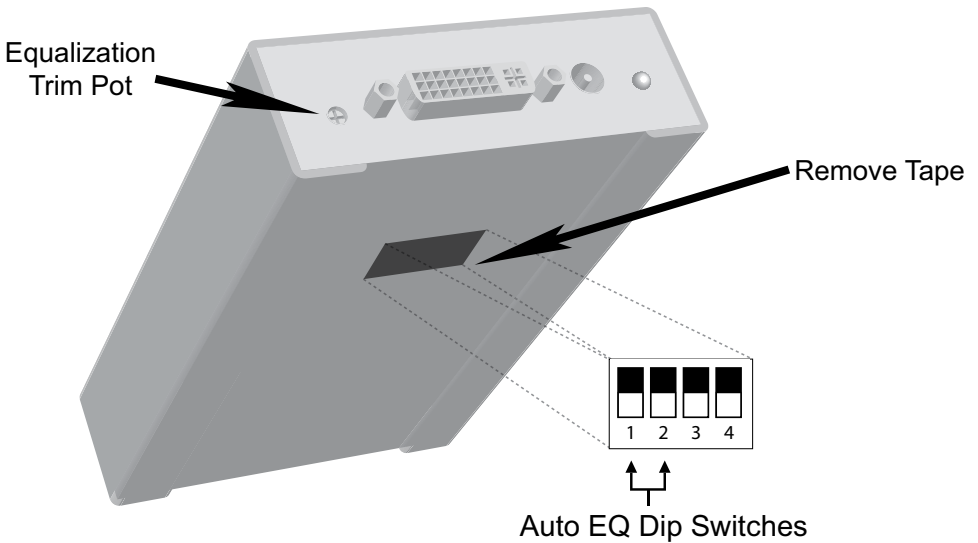
- 1) Strong boost should not be used on stranded cables. Strong boosting will cause pixels or no picture on these cables.
- 2) Using the wrong settings will not damage the units; it will either produce no image or a noisy image.
- 3) To eliminate the possibility of cross talk and interference, cables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

DIP SWITCH DIAGRAM

EXT-DVI-CAT5-4X

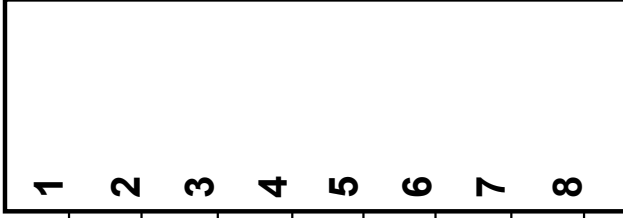


EXT-DVI-CAT5MSR



CAT5 LINK CABLE - WIRING DIAGRAM

RJ-45 Jack



White/Orange

Orange

White/Green

Blue

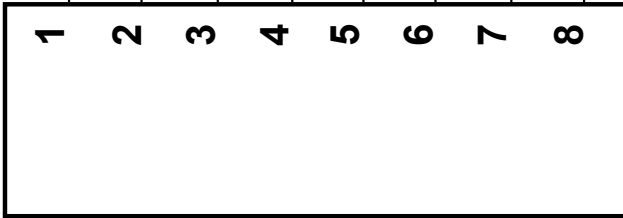
White/Blue

Green

White/Brown

Brown

RJ-45 Jack



1

2

3

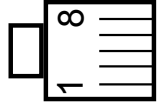
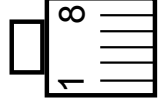
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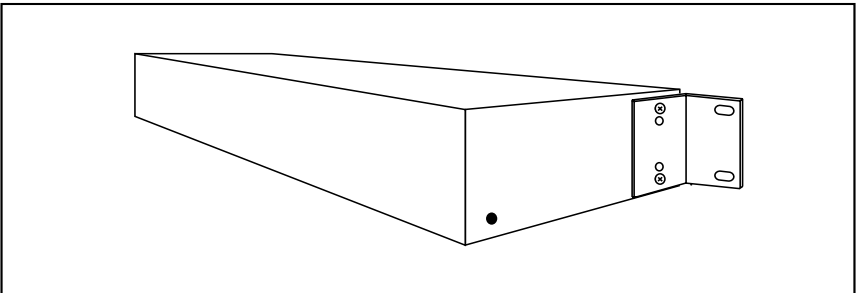
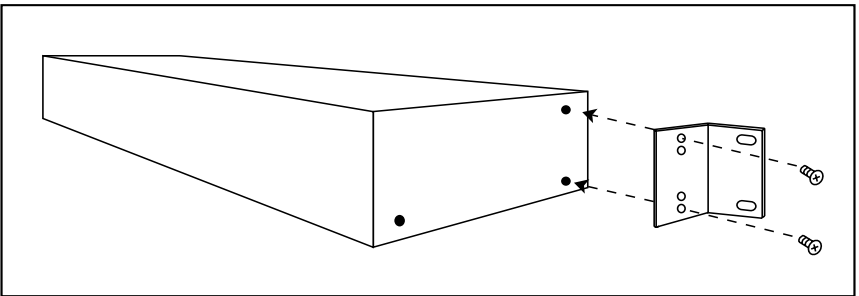
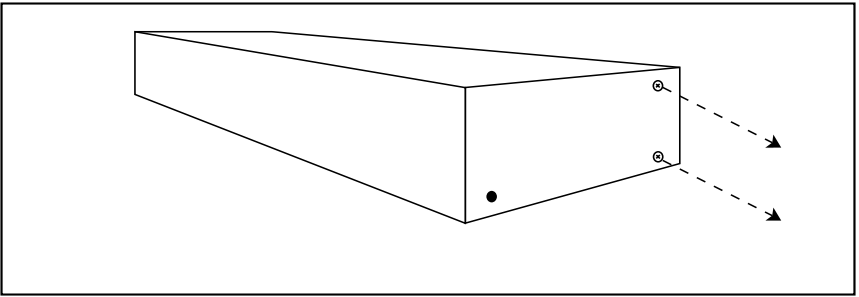
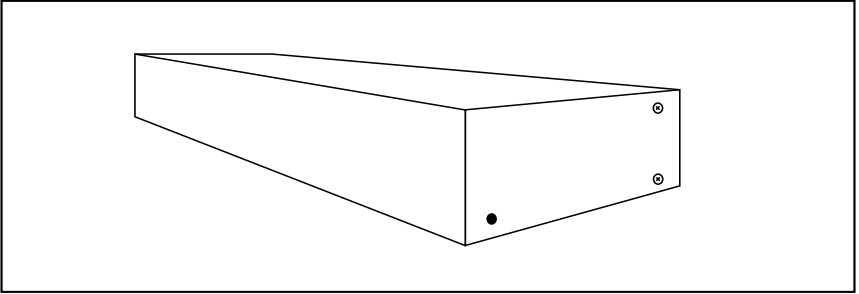
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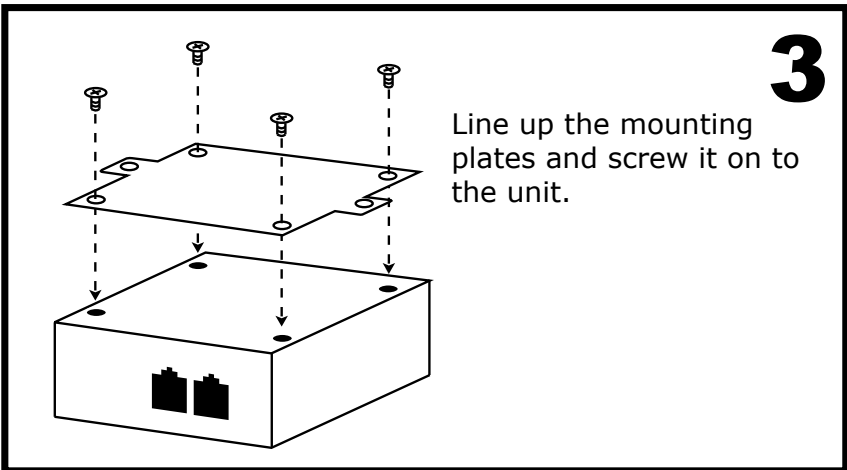
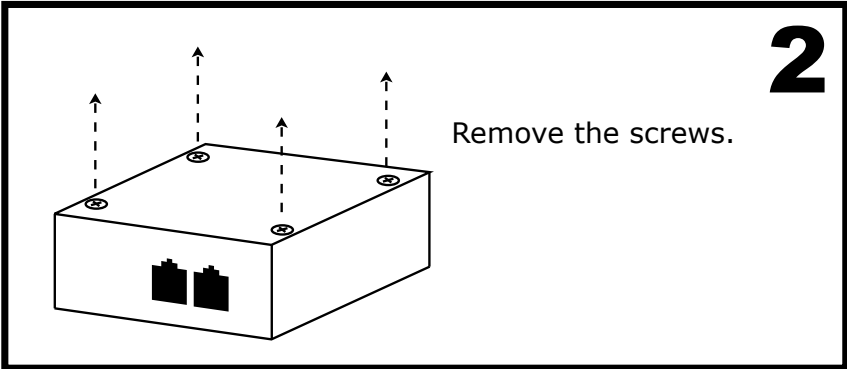
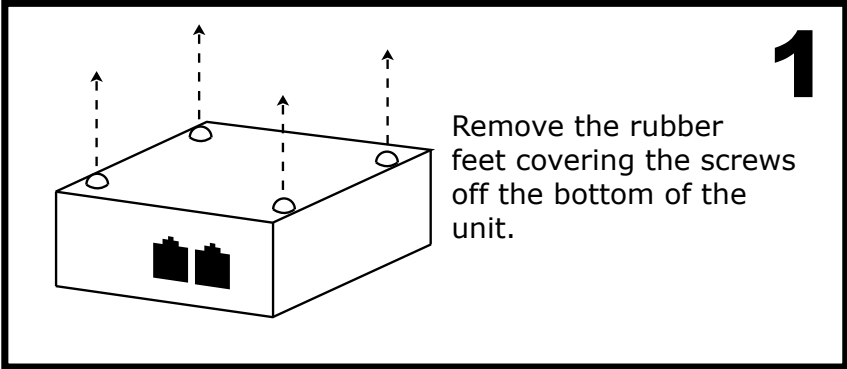
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EXT-DVI-CAT5-4X RACK MOUNT INSTALLATION



Mounting Plate Installation



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 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 CAT5e 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 of 15-20 feet. You can also make sure you have the correct boost setting configured (refer to page 5).

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 CAT5e 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. You can also try adjusting the service switches and manually adjusting the equalization. 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.

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 colorspace 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 colorspace is not being transmitted correctly due to loss in the CAT5 cable, try replacing the DDC cable.

TERMINOLOGY

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

Video Amplifier Bandwidth	4 x 1.65Gbps
Input Video Signal	1.2 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Single Link Range	1080p / 1920 x 1200
DVI Connector Type	DVI-I 29 pin female (digital only)
Link Connector	RJ-45
Power Consumption	60 watts (max)
Transmitter Power Supply	24V DC
Receiver Power Supply	5V DC
Dimensions	17" W x 1.75" H x 5.875" D
Shipping Weight	10 lbs.