CAT5 • 5000HD

USER MANUAL

www.gefen.com

ASKING FOR ASSISTANCE

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

Fax (818) 772-9120

Technical Support Hours:
8:00 AM to 5:00 PM Monday thru Friday.

Write To:

Gefen Inc.
c/o Customer Service
20600 Nordhoff Street
Chatsworth, CA 91311

www.gefen.com
support@gefen.com

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OPERATION NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE CAT5•5000HD SYSTEM

***** The CAT5•5000HD units are housed in a metal box for better RF shielding.

* In order to extend the full 50 meters you need a high quality CAT5e cable.

* CAT6 cable is suitable for high resolutions at 50 meters.

* If using a ADC-DVI Adapter, the "5V to cable" jumper by the input connector on the sender unit needs to be enabled.

INTRODUCTION

Thank you for purchasing the new ex•tend•it CAT5•5000HD series by Gefen, Inc.

The ex•tend•it CAT5•5000HD by Gefen allows users the benefits of extending dual DVI displays and USB beyond the desktop. In a growing number of applications, broadcast stations and production facilities need to locate a computer remotely from the keyboard, mouse, and video monitor. A CPU may need to be shared between several users, for example, or moved to another room because of annoying fan noise.

The CAT5•5000HD series can be used to extend computers with noisy fans, printers, hard drives, scanners, cameras, keyboards, mouse, and any other USB. With the potential to cover the distance of 150 feet, industry standard Category 5 (CAT-5) cables are used for the extension of all the devices.

CONTENTS

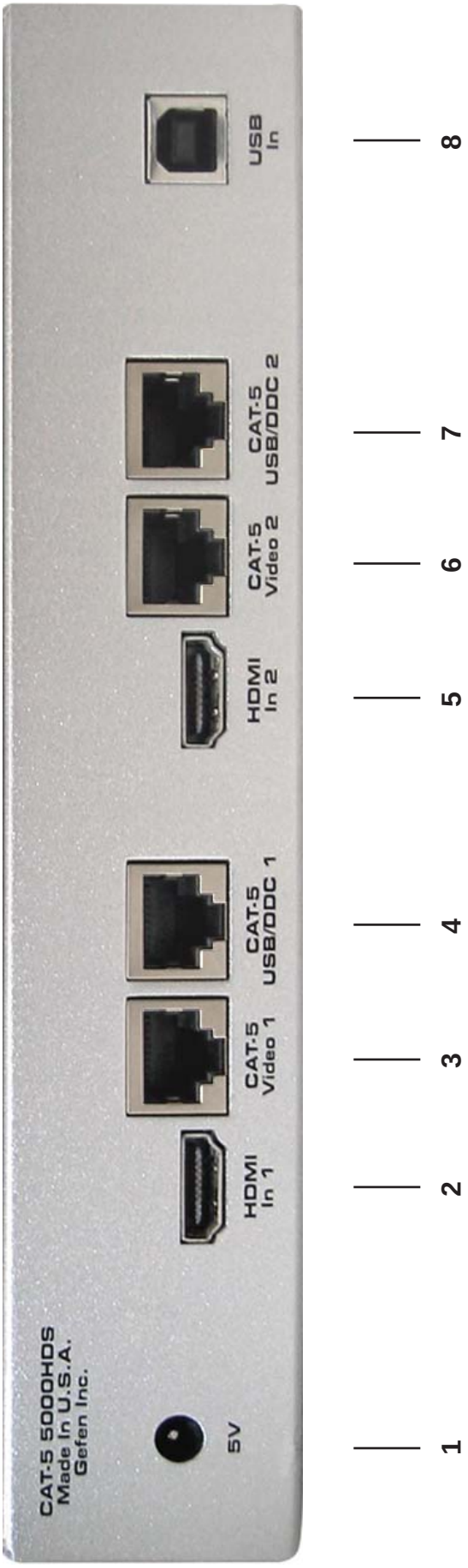
The CAT5•5000HD system consists of:

--- (1) CAT5•5000HDS sender unit
--- (1) CAT5•5000HDR receiver unit
--- (2) 5 VDC power supplies
--- (2) DVI to HDMI cable M-M (6FT)
--- (1) USB cable (06FT)
--- (1) User Manual

HOW IT WORKS

The CAT5•5000HD sender unit sits next to your computer. The cables supplied with the CAT5•5000HD connects your DVI source(s) and USB to the send unit. The CAT5•5000HD receiver unit sits next to your DVI displays - up to 150 feet away. The displays and USB plug into the back of the CAT5•5000HD receiver unit. Four CAT-5 cables connect the CAT5•5000HD-S and the CAT5•5000HD-R units to each other.

CAT5•5000HDS BACK PANEL LAYOUT



CAT5•5000HDS BACK PANEL FUNCTIONS

1 **POWER -** 5 VDC external power supply

2 **HDMI IN 1 -** HDMI Input connects to your computer with the supplied DVI to HDMI cable

3 **CAT5 Video 1 -** RJ-45 input extends HDMI input 1 with CAT-5 cable

4 **CAT5 USB/DDC1 -** RJ-45 input extends USB and DDC1 signals with CAT-5 cable

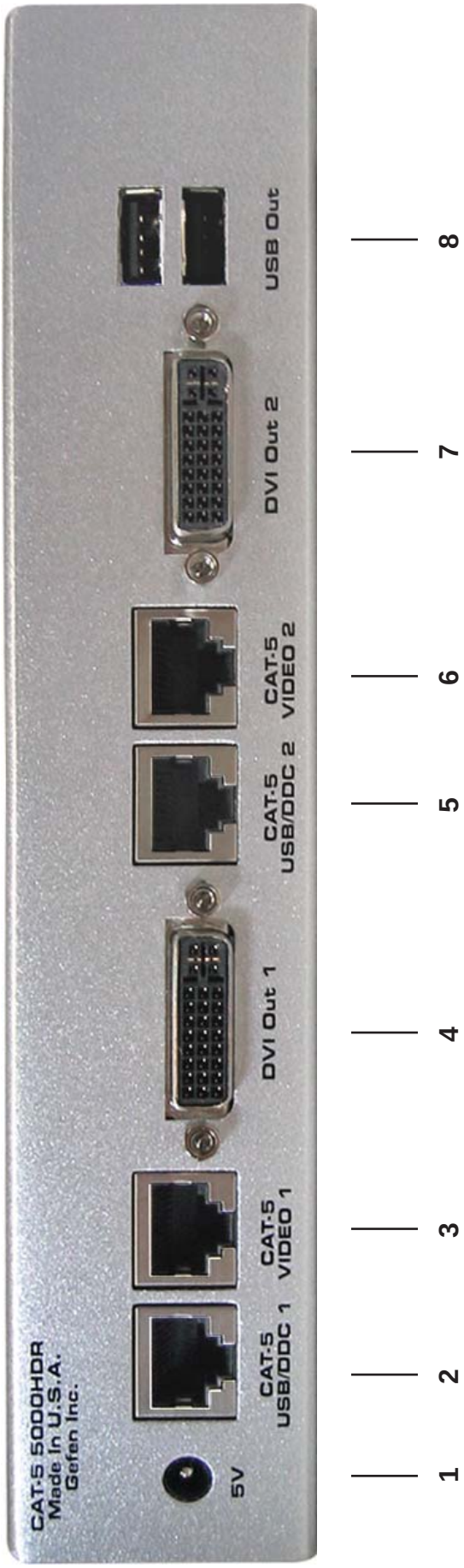
5 **HDMI IN 2 -** HDMI Input connects to your computer with the supplied DVI to HDMI cable

6 **CAT5 Video 2 -** RJ-45 input extends HDMI input 2 with CAT-5 cable

7 **CAT5 USB/DDC2 -** RJ-45 input extends USB and DDC2 signals with CAT-5 cable

8 **USB IN -** USB Input from computer

CAT5•5000HDR BACK PANEL LAYOUT



CAT5•5000HDR BACK PANEL FUNCTIONS

1 **POWER -** 5 VDC external power supply

2 **CAT5 USB/DDC1 -** RJ-45 input extends USB and DDC1 signals with CAT-5 cable

3 **CAT5 Video 1 -** RJ-45 input extends video input 1 with CAT-5 cable

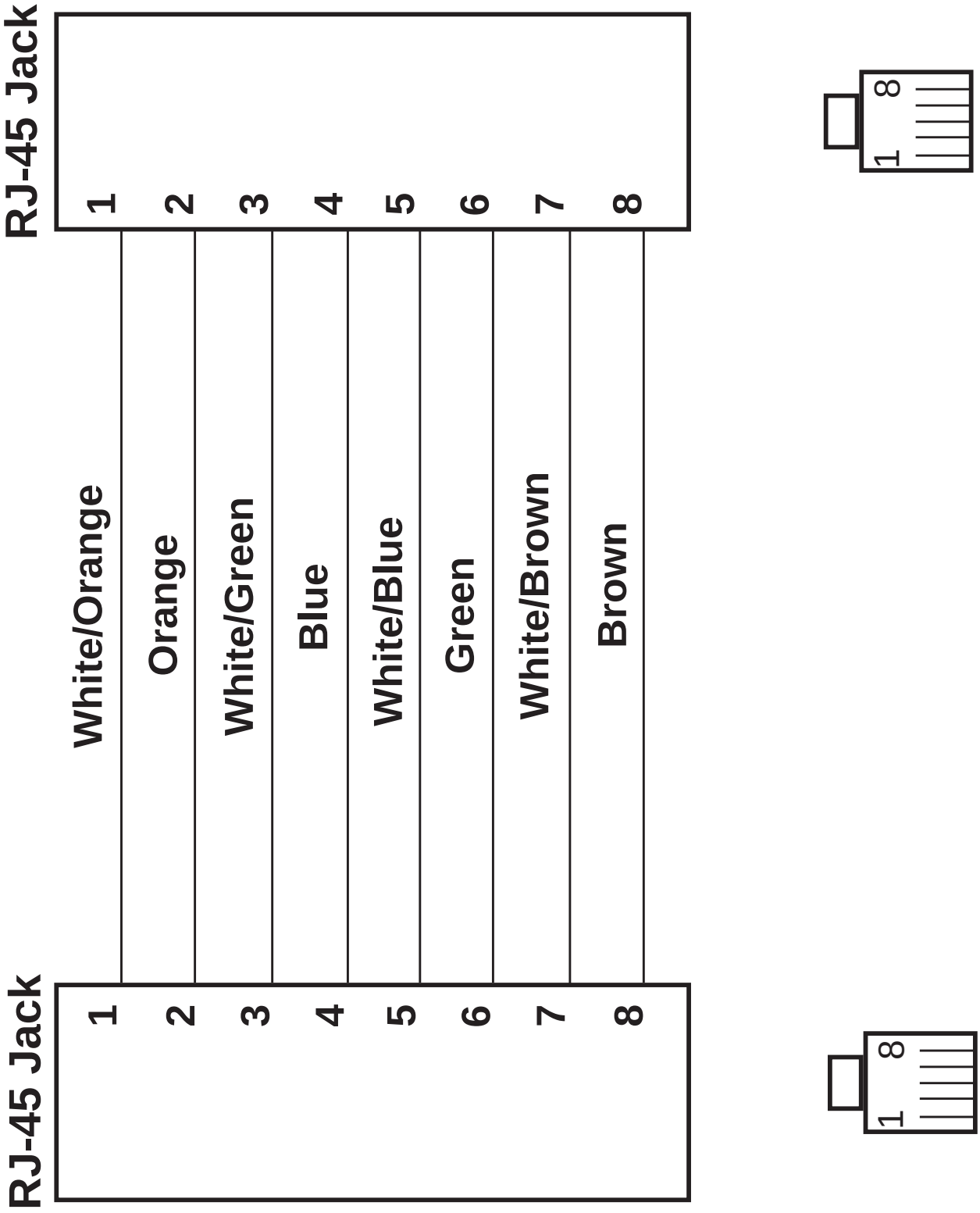
4 **DVI OUT 1 -** DVI output connects to the monitor 1 for local video

5 **CAT5 USB/DDC1 -** RJ-45 input extends USB and DDC1 signals with CAT-5 cable

6 **CAT5 Video 2 -** RJ-45 input extends video input 2 with CAT-5 cable

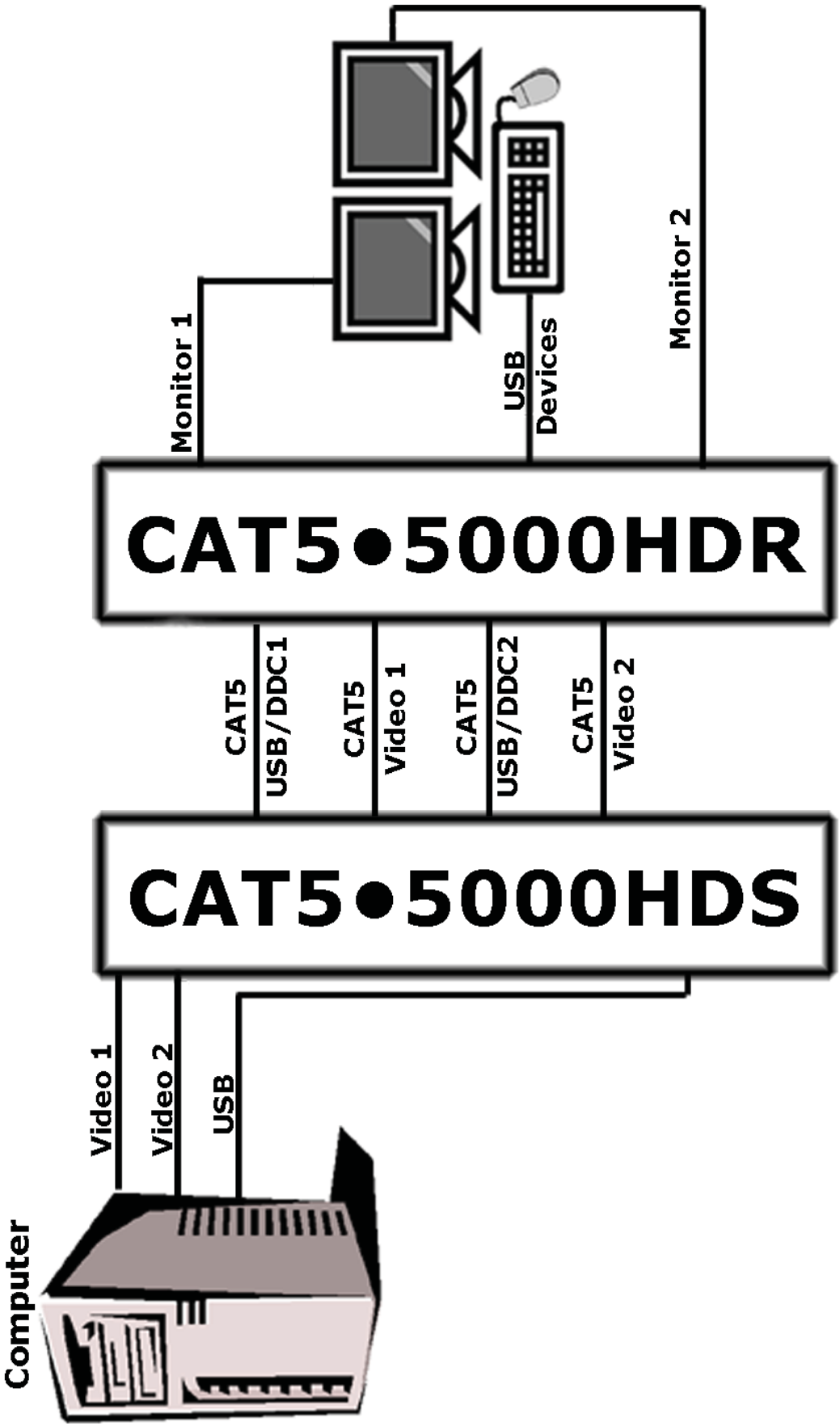
7 **DVI OUT 2 -** DVI output connects to the monitor 2 for local video

8 **USB OUT -** USB Output to devices


RJ-45 Jack
1
2
3
4
5
6
7
8
White/Orange
Orange
White/Green
Blue
White/Blue
Green
White/Brown
Brown
RJ-45 Jack
1
2
3
4
5
6
7
8

1
8

1
8


Monitor 1
USB
Devices
Monitor 2
CAT5•5000HDR
CAT5
USB/DDC1
CAT5
Video 1
CAT5
USB/DDC2
CAT5
Video 2
CAT5•5000HDS
Video 1
Video 2
USB
Computer

SERVICE SWITCH USAGE GUIDE

Gefen CAT5 DVI Extenders (sender and receiver) both contain a pair of service switches located on the board inside the case. These service switches are used to select from a set of configurations that will equalize the signal to best match the conditions in your setup. For the CAT5 5000HD, there is one bank per monitor in both the sender and receiver.

Sender Service Switches

Option No.	Switch 1 Position	Switch 2 Position	Description
1	0 (OFF)	0 (OFF)	Strong Line Driver (Default)
2	1 (ON)	0 (OFF)	Weak Line Driver

Receiver Service Switches

Option No.	Switch 1 Position	Switch 2 Position	Description
1	0 (OFF)	0 (OFF)	EQ 0 (Default)
2	1 (ON)	0 (OFF)	EQ 1
3	0 (OFF)	1 (ON)	EQ 2
4	1 (ON)	1 (ON)	EQ 3

Adjustment Guidelines:

1) Higher EQ level is used to equalize poor/low quality CAT-5e cables

2) Stronger Line Driver is used to boost signals through longer cables

3) It is an optimal balance of Line Driver and EQ that will result in the best possible picture.

TROUBLESHOOTING

Frequently Asked Questions

What kind of CAT-5e cable should I be using?
Solid core CAT-5e cable rated at 350 Mhz, terminated in 568a or 568b is the minimum requirement. CAT-6 cables are also a viable cable to use. Higher resolutions and transmission lengths greater then 80 feet might require low skew cables for optimum performance.

Why does the CAT5 sender unit have a HDMI connector on the input?
A HDMI connector was used on the input to optimize space on the board by using the smaller connector. HDMI is electrically equivalent to DVI-D.

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. Test to make sure the units are working with short CAT-5e cables 15-20 feet. Units shipped starting 12-2005 have the service switches inside the unit enabled. Please refer to the Service Switch Usage Guide on page 9.

I'm getting no video on the screens using ADC to DVI adapters, what is wrong?
ADC to DVI adapters remove the necessary 5V line that the extenders require on the input to operate. To enable the 5V you will need to open up the sender unit. Next to each DVI/HDMI input connector will be a jumper that needs to be shorted to enable 5V to the input. This should only be enabled when using a ADC to DVI Adapter otherwise damage to your video card may result.

How can I fix the flickering picture?
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-5e cable on the Video to reduce interference. You can also try adjusting the service switches. Usually this is caused from either too much or too little of a boost. Please refer to the service switch guide on page 9 for the different combinations.

Can I run the CAT-5 cable through a patch bay?
No, the signal will not transmit reliably

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. Connection standard developed by Intel for connecting computers to digital monitors such as flat panels and DLP projectors. A consumer electronics version, not necessarily compatible with the PC version, is used as a connection standard for HDTV tuners and displays. Transmits an uncompressed digital signal to the display. The latter version uses HDCP copy protection to prevent unauthorized copying

USB
Universal Serial Bus. An external peripheral interface standard for communication between a computer and external peripherals over a cable using bi-serial transmission.

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.

PS/2
A port type developed by IBM for the purpose of connecting a keyboard or mouse to a PC. The PS/2 port has a mini DIN plug containing 6 pins. PS/2 ports are used so that the serial port can be used by another device. The PS/2 port is often called the mouse port.

RS-232
Recommended Standard 232. This is the de facto standard for communication through PC serial ports. It can refer to cables and ports that support the RS232 standard.

SPECIFICATIONS

Video Amplifier Bandwidth ..... 1.65 GHz

Single Link Range ..... 1920 x 1200

Vertical Frequency Range ..... 50-60 Hz

DVI Output Connector Type ..... DVI-D

HDMI Input Connector Type ..... HDMI

Link Connector RJ-45

USB - "A" Connector ..... USB Out

USB - "B" Connector ..... USB Device Input

Power Consumption ..... 15 Watts (max.)

Power Supply ..... 5 VDC (External)

Dimensions Unit ..... 4.4” D x 8.4” W x 1.75” H

Rack Mountable ..... 1 Rack Spaces

Shipping Weight ..... 7 Lbs

WARRANTY

Gefen Inc. warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen Inc. is notified within two (2) year from the date of shipment, Gefen Inc. 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 cable must be free from any scratches, markings, and neatly coiled.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen Inc. assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen Inc., 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 CAT5•5000HD features and specifications is subject to change without notice.