



CAT5 • 1000HD
USER MANUAL

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

Notice

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

CAT5•1000HD is a trademark of Gefen Inc.
Macintosh is a trademark of Apple Computer Inc.

TABLE OF CONTENTS

- 1 Introduction
- 2 How It Works
- 3 CAT5•1000HDS Back Panel Layout
- 4 CAT5•1000HDS Back Panel Function Descriptions
- 5 CAT5•1000HDR Back Panel Layout
- 6 CAT5•1000HDR Back Panel Functions Descriptions
- 7 Link Cable Wiring Diagrams
- 8 CAT5•1000HD - Wiring Diagram
- 9 Service Switch Usage Guide
- 10 Frequently Asked Questions
- 11 Terminology
- 12 System Specifications
- 13 Warranty

OPERATION NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE CAT5•1000HD SYSTEM

- * The CAT5•1000HD 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•1000HD series by Gefen, Inc.

The ex•tend•it CAT5•1000HD 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•1000HD 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.

HOW IT WORKS

CONTENTS

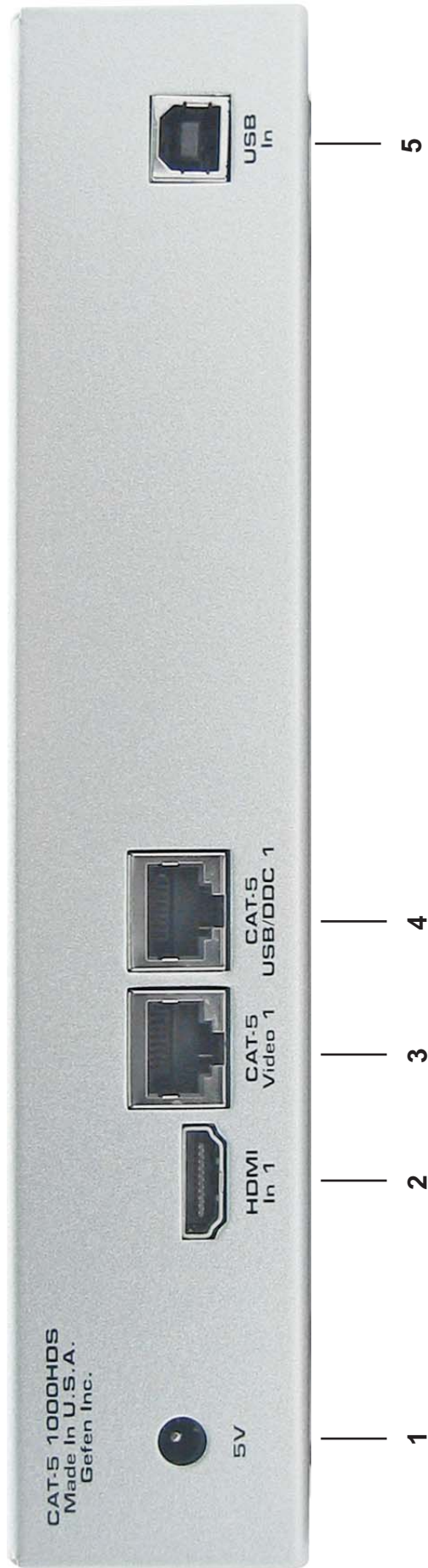
The CAT5•1000HD system consists of:

- (1) CAT5•1000HDS sender unit
- (1) CAT5•1000HDR receiver unit
- (2) 5 VDC power supplies
- (1) DVI to HDMI cable M-M (6FT)
- (1) USB cable (06FT)
- (1) User Manual

HOW IT WORKS

The CAT5•1000HD sender unit sits next to your computer. The cables supplied with the CAT5•1000HD connects your DVI source and USB to the send unit. The CAT5•1000HD receiver unit sits next to your DVI display up to 150 feet away. The display and USB plug into the back of the CAT5•1000HD receiver unit. Two CAT-5 cables connect the CAT5•1000HD-S and the CAT5•1000HD-R units to each other.

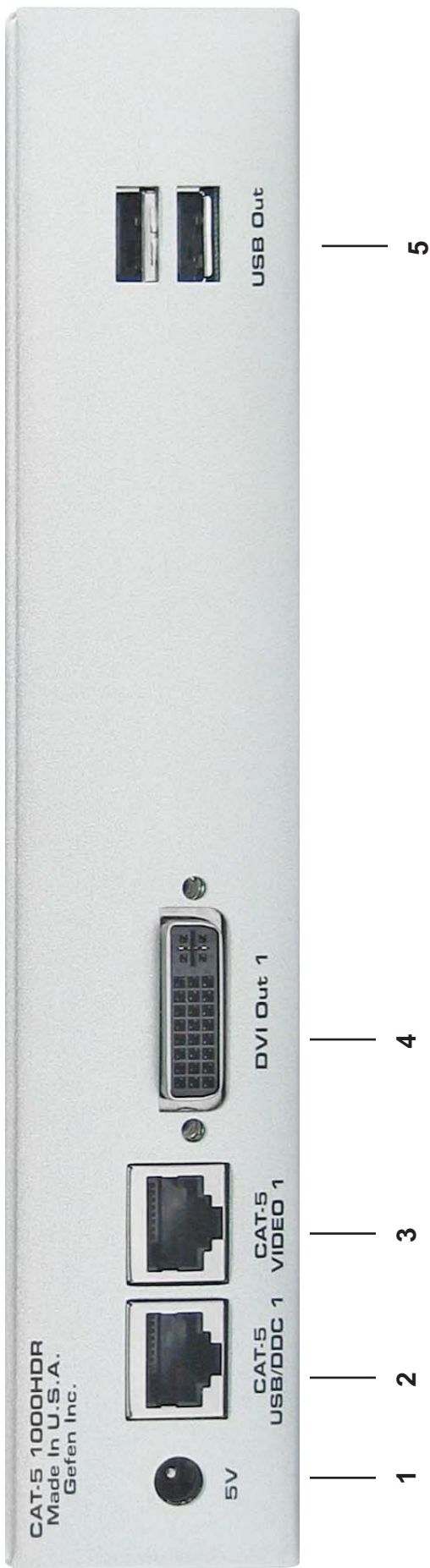
CAT5•1000HDS BACK PANEL LAYOUT



CAT5•1000HDS 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 **USB IN** - USB Input from computer

CAT5•1000HDR BACK PANEL LAYOUT



CAT5•1000HDR 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 **USB Out** - USB Output to computer

CAT5 LINK CABLE - WIRING DIAGRAM

RJ-45 Jack



White/Orange

Orange

White/Green

Blue

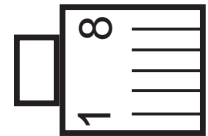
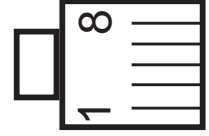
White/Blue

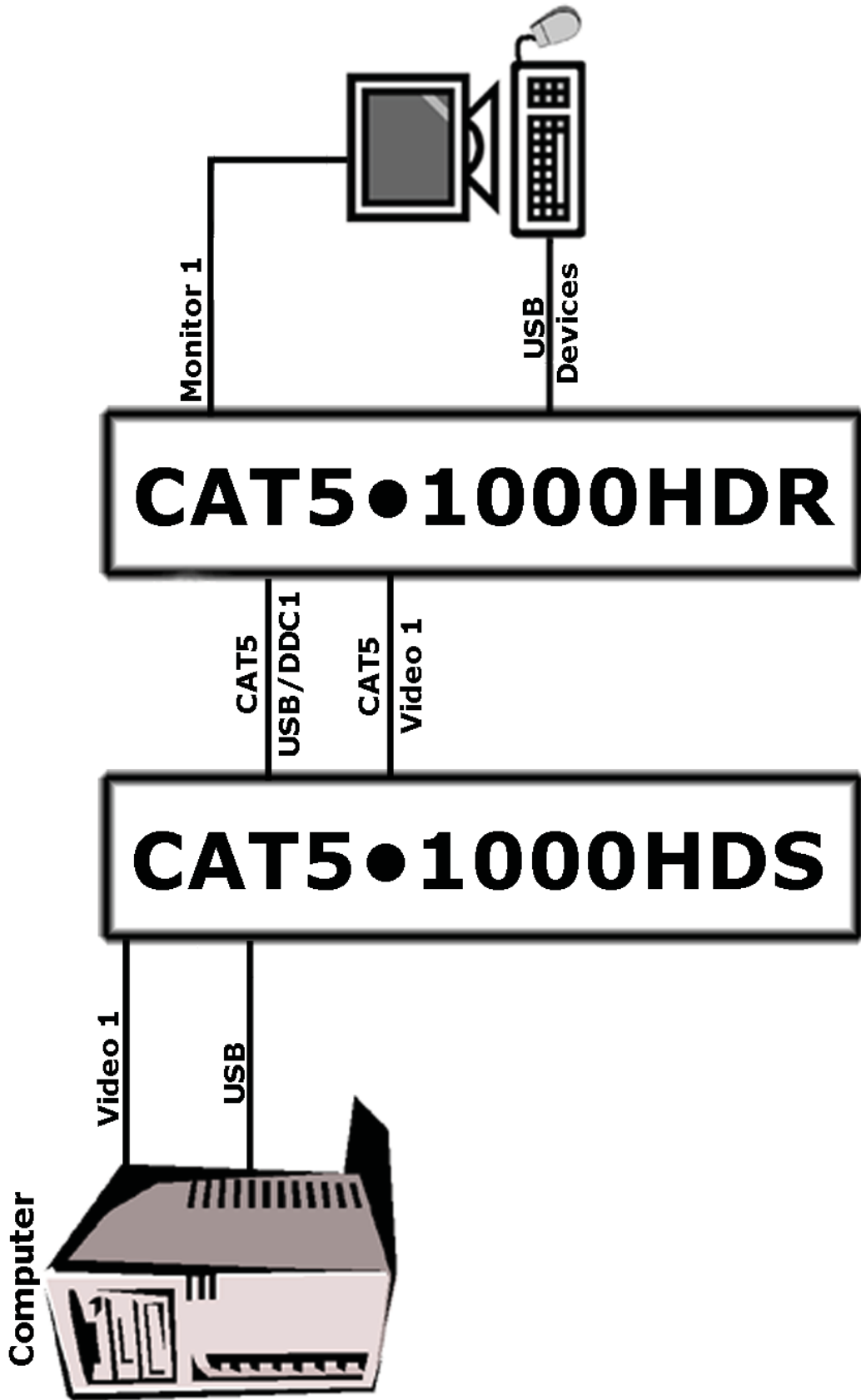
Green

White/Brown

Brown

RJ-45 Jack





SERVICE SWITCH USAGE GUIDE

Gefen CAT5 DVI Extenders (sender and receiver) both contain a pair of service switches located on the board. 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.

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 than 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

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 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•1000HD features and specifications is subject to change without notice.