10/100/1000 Gigabit Switches

Use this guide to install the following products:

SD2005	5-Port 10/100/1000 Gigabit Switch
SD2008	8-Port 10/100/1000 Gigabit Switch

User Guide

LINKSYS®

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Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

Every 10/100/1000 Gigabit Switch has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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Table of Contents

Chapter 1: Introduction

The 10/100/1000 Gigabit Switch

The 5- or 8-Port 10/100/1000 Gigabit Switch provides non-blocking, wire speed switching for your 10, 100, and 1000 megabit network clients. Drop this Switch in place of your current workgroup hub or switch, and you can upgrade your high-requirement workstations to full Gigabit speeds as necessary, while continuing to service other clients at their current speeds. Or build your network from the ground up, with appropriate link speeds for each user's requirements.

Apply this switching power to your current hub-based Ethernet network, and your data traffic efficiency will improve several times over. Connect your Gigabit-equipped workstations to the Switch's 10/100/1000 ports for full-duplex, dedicated bandwidth of up to 1000Mbps! It's perfect for graphics, multimedia, and other applications that have to move large files across the network quickly.

With the 5- or 8-Port 10/100/1000 Gigabit Switch, you can connect your existing 10/100 Ethernet network to your Gigabit server backbone without any additional equipment. All ports are auto-negotiating, and have automatic MDI/MDI-X crossover detection, so you don't have to worry about the cable type. Address learning and aging is supported, as well as 802.3x flow control with head-of-line blocking prevention to keep your high-speed clients from bogging down in lower-speed traffic.

The 5- or 8-Port 10/100/1000 Gigabit Switch from Linksys is the perfect solution for your desktop Gigabit and 10/100 networking needs.

Features

- 5 or 8 RJ-45, 10/100/1000Mbps, auto-sensing, half/full duplex switched ports
- All ports support auto MDI/MDI-X cable detection
- Fully compliant with IEEE 802.3, 802.3u, 802.3x, 802.3ab
- Non head-of-line blocking architecture
- Full-duplex IEEE 802.3x flow control and half-duplex backpressure with intelligent port-based congestion detection and broadcast rate control

Chapter 2: Getting to Know the 10/100/1000 Gigabit Switch

Overview

The 5- and 8-Port 10/100/1000 Gigabit Switches differ in number of LEDs and ports. Pictured here is the 5-Port Switch; however, the other Switch is similar in form.

Front Panel LEDs

Figure 2-1

System — *Green.* The System LED will light up when the Switch is powered on.

1-5 or **1-8** — *Green.* Each LED will light up when there is a connection made through its corresponding port. It will flash when there is activity on its corresponding port.

Back and Side Panel Features

Figure 2-2

The network ports are located on the back panel of the Switch.

1-5 or **1-8** — These ports are connection points for PCs and other network devices, such as additional switches.

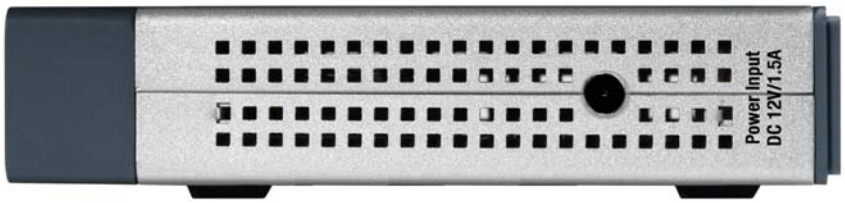

Figure 2-3

The power port is located on the side panel of the Switch (see Figure 2-3).

(power) — The power port is where you will connect the included power adapter.

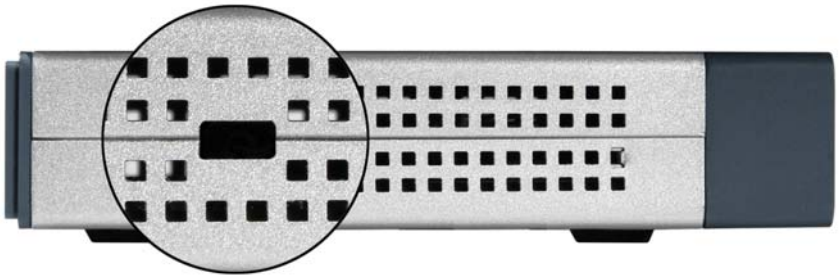

Figure 2-4

The security slot is located on the other side panel (see Figure 2-4).

(security slot) — The security slot is where you can attach a lock so the Switch will be protected from theft.

Chapter 3: Connecting the 10/100/1000 Gigabit Switch

Overview

This chapter will explain how to connect network devices to the Switch. For an example of a typical network configuration, see the application diagram shown in Figure 3-1.

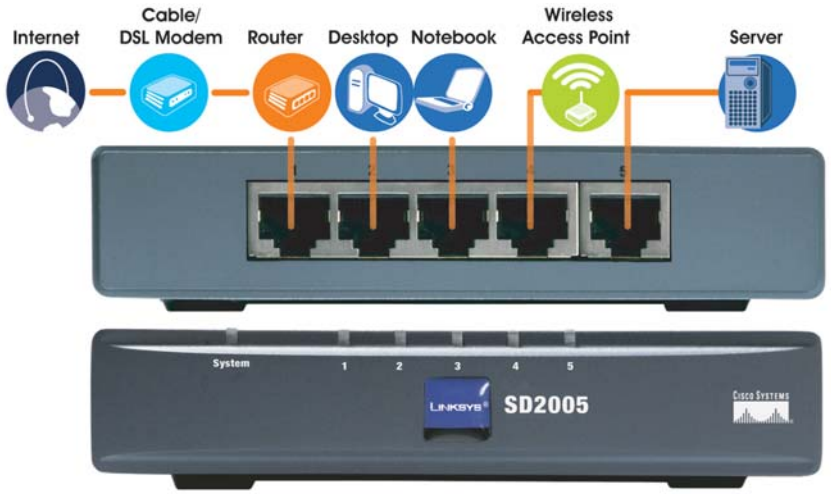

Figure 3-1

When you connect your network devices, make sure you don't exceed the maximum cabling distances, which are listed in the following table:

Maximum Cabling Distances

From	To	Maximum Distance
Switch	Switch or Hub*	100 meters (328 feet)
Hub	Hub	5 meters (16.4 feet)
Switch or Hub	Computer	100 meters (328 feet)

**A hub refers to any type of 100Mbps hub, including regular hubs and stackable hubs. A 10Mbps hub connected to another 10Mbps hub can span up to 100 meters (328 feet).*

Connecting Network Devices

To connect network devices to the Switch, follow these instructions.

1. Make sure all the devices you will connect to the Switch are powered off.
2. Connect a Category 5 Ethernet network cable to one of the numbered ports on the Switch.

Figure 3-2

Note: Use Category 5e Ethernet network cables for your Gigabit connections.

3. Connect the other end to a PC or other network device.
4. Repeat steps 2 and 3 to connect additional devices.
5. Connect the supplied power adapter to the power port on the Switch's side panel.

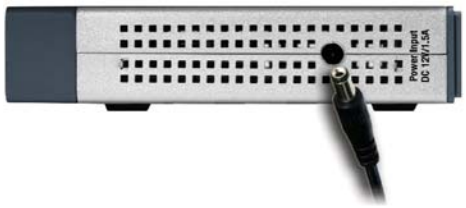

Figure 3-3

Note: Make sure you use the power adapter included with the Switch. Using a different power adapter may result in damage to the Switch.

6. Plug the other end of the adapter into an electrical outlet.
7. Power on the devices connected to the Switch. Each active port's corresponding LED will light up on the Switch.

Proceed to the following section, "Placement Options."

Placement Options

Set the Switch on its four rubber feet, or hang the Switch on a wall using its wall-mount slots.

To use the wall-mount option, follow these instructions:

1. The wall-mount slots are two crisscross slots on the Switch's bottom panel, as shown in Figure 3-4. Attach two screws to the wall, so that the Switch's wall-mount slots line up with the two screws.

2. Maneuver the Switch so the screws are inserted into the two slots.

Figure 3-4

Congratulations!

The installation of the 10/100/1000 Gigabit Switch is complete.

Appendix A: Glossary

10BaseT - An Ethernet standard that uses twisted wire pairs.

100BaseTX - IEEE physical layer specification for 100 Mbps over two pairs of Category 5 UTP or STP wire.

1000Base-T - Provides half-duplex and full-duplex 1000Mbps Ethernet service over Category 5 links as defined by ANSI/TIA/EIA-568-A. Topology rules for 1000Base-T are the same as those used for 100BaseT. Category 5 link lengths are limited to 100 meters by the ANSI/TIA/EIA-568-A cabling standard.

Auto MDI/MDI-X - On a network hub or switch, an auto MDI/MDI-X port automatically senses if it needs to act as a MDI or MDI-X port. The auto-MDI/MDI-X capability eliminates the need for crossover cables.

Auto-negotiate - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

CAT 5 - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

CAT 5e - The additional cabling performance parameters of return loss and far-end crosstalk (FEXT) specified for 1000BASE-T and not specified for 10BASE-T and 100BASE-TX are related to differences in the signaling implementation. 10BASE-T and 100BASE-TX signaling is unidirectional-signals are transmitted in one direction on a single wire pair. In contrast, Gigabit Ethernet is bi-directional-signals are transmitted simultaneously in both directions on the same wire pair; that is, both the transmit and receive pair occupy the same wire pair.

Ethernet - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

Fast Ethernet - A 100 Mbps technology based on the 10Base-T Ethernet CSMA/CD network access method.

Hub - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

Mbps (**M**ega**b**its **p**er **s**econd) - One million bits per second; unit of measurement for data transmission.

MDI (**M**edium **D**ependent **I**nterface) - On a network hub or switch, a MDI port, also known as an uplink port, connects to another hub or switch using a straight-through cable. To connect a MDI port to a computer, use a crossover cable.

MDI-X (**M**edium **D**ependent **I**nterface Crossed) - On a network hub or switch, a MDI-X port connects to a computer using a straight-through cable. To connect a MDI-X port to another hub or switch, use a crossover cable.

Network - A system that transmits any combination of voice, video and/or data between users.

Switch - 1. A data switch connects computing devices to host computers, allowing a large number of devices to share a limited number of ports. 2. A device for making, breaking, or changing the connections in an electrical circuit.

Topology - A network's topology is a logical characterization of how the devices on the network are connected and the distances between them. The most common network devices include hubs, switches, routers, and gateways. Most large networks contain several levels of interconnection, the most important of which include edge connections, backbone connections, and wide-area connections.

UTP - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

Appendix B: Specifications

Model Number	SD2005 5-Port 10/100/1000 Gigabit Switch SD2008 8-Port 10/100/1000 Gigabit Switch
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3ab
Ports	
SD2005	5 RJ-45, 10/100/1000Mbps ports
SD2008	8 RJ-45, 10/100/1000Mbps ports
Cabling Type	Category 5e
LEDs	
SD2005	System, 1 through 5
SD2008	System, 1 through 8
Environmental	
Dimensions	5.12" x 1.18" x 5.00" (130 mm x 30 mm x 127 mm)
Unit Weight	14.99 oz. (0.425 kg)
Power	DC 12V, 1.5 A
Certifications	FCC Class B, CE
Operating Temp.	32ºF to 122ºF (0ºC to 50ºC)
Storage Temp.	-40ºF to 158ºF (-40ºC to 70ºC)
Operating Humidity	20% to 95%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing

Appendix C: Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

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Appendix D: Contact Information

For help with the installation or operation of this 10/100/1000 Gigabit Switch, contact Linksys Technical Support at one of the phone numbers or Internet addresses below.

Sales Information	800-546-5797 (LINKSYS)
Technical Support	800-326-7114
RMA (Return Merchandise Authorization) Issues	www.linksys.com (or call 949-271-5461)
Fax	949-265-6655
E-mail	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

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