

24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC



Use this guide to install:
SR224G

User Guide



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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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Chapter 1: Introduction

The 24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC

This new Linksys rackmount switch delivers non-blocking, wire speed switching for your 10, and 100 megabit network clients, plus multiple options for connecting to your network backbone. Twenty-four 10/100 ports wire up your workstations, while the integrated 10/100/1000BaseTX port connects to the backbone at Gigabit speeds. And the mini GBIC port allows future expansion to alternate transmission media like optical fiber.

It features non-blocking, wire-speed switching that forwards packets as fast as your network can deliver them. Also included are Address Learning and Aging to prevent data transfer errors and Data Flow Control to help prevent packet collisions. The switch provides broadcast storm suppression, has hardware MAC and IP address learning, and supports packet filtering and port security.

All ports have automatic MDI/MDI-X crossover detection, so you don't have to worry about the cable type. Each port independently and automatically negotiates for best speed and whether to run in half- or full-duplex mode. Head-of-line blocking prevention keeps your high-speed clients from bogging down in lower-speed traffic and fast store-and-forward switching prevents damaged packets from being passed on into the network.

No matter how intensive your network demands, the Linksys 24-Port 10/100 + 1-Port Gigabit Switch + 1miniGBIC has speed, flexibility, and reliability that you can count on.

Features

- Ideal for Integrating Your 10BaseT and 100BaseTX Network Hardware
- 24 10/100 Ports Provide Dedicated Bandwidth in Half or Full-Duplex Modes
- 1 Gigabit Ethernet Port and 1 Mini-GBIC Slot for Gigabit Fiber expansion
- Each port supports Auto MDI/MDI-X cable detection
- Compatible with All Major Network Operating Systems
- Advanced Store-and-Forward Packet Switching Optimizes Data Transfers
- Auto Partitioning Protects PCs from Downed Network Lines
- Signal Regeneration Ensures Data Transfer Integrity
- Free Technical Support—24 Hours a Day, 7 Days a Week, Toll-Free US Calls
- Limited Lifetime Warranty

Chapter 2: Getting to Know the 24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC

Front Panel LEDs and Ports



Figure 2-1

The LEDs and network ports are located on the front panel of the Switch. All network ports are independent, so you can use all of them simultaneously.

LEDS

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

1-24 *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.

G1 *Green.* The G1 LED will light up when there is a connection made through the Gigabit port. It will flash when there is activity on the Gigabit port.

G2 *Green.* The G2 LED will light up when there is a connection made through the miniGBIC port. It will flash when there is activity on the miniGBIC port.

Ports

1-24 These 10/100 ports are connection points for PCs and other network devices, such as additional switches.

Gigabit This 10/100/1000 port is a connection point for a network device, such as a Gigabit server.

mini-GBIC

The mini-GBIC (gigabit interface converter) port is a connection point for a mini-GBIC module, so the Switch can be uplinked via fiber to another switch. The mini-GBIC port is compatible with two types of modules, 850 nm and 1310 nm.

Back Panel Port



Figure 2-2

The power port is located on the back panel of the Switch.

(power)

The power port is where you will connect the included power cord.

Chapter 3: Connecting the 24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC

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.

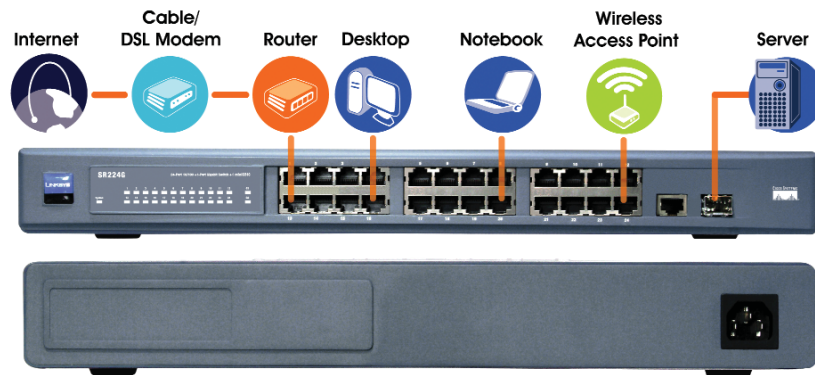


Figure 3-1

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

3. Connect the other end to a PC or other network device.
4. Repeat steps 2 and 3 to connect additional devices.
5. If you are using the Gigabit port, connect a Category 5e Ethernet network cable to the Gigabit port on the Switch, and connect the other end to a Gigabit server or other network device.
6. If you are using the mini-GBIC port, then connect the mini-GBIC module to the mini-GBIC port. For detailed instructions, refer to the module's documentation.



Note: The mini-GBIC port is compatible with two types of mini-GBIC modules, 850 nm and 1310 nm.

7. Connect the supplied power cord to the Switch's power port, and plug the other end into an electrical outlet.
8. 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

There are two ways to physically install the Switch:

- set the Switch on its four rubber feet
- mount the Switch in a standard-sized, 1U high rack.

For rack-mounting, the Switch has four mounting holes located on each side. Place the Switch in the rack, and secure it with screws.

Congratulations! The installation of the 24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC 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 (Megabits per second) - One million bits per second; unit of measurement for data transmission.

MDI (Medium Dependent Interface) - 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 (Medium Dependent Interface 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	SR224G
Standards	IEEE 802.3, 802.3u, 802.3x, 802.3ab
Ports	24 RJ-45 10/100/1000, 1 10/100/1000 Port, and 1 mini-GBIC Port
Cabling Type	Cat5, Multi-Mode fiber 1310 nm and 850 nm supported
LEDs	System, 1-24, G1, G2

Environmental

Dimensions	17.01" x 1.75" x 13.74" (432 mm x 44.5 mm x 349 mm)
Unit Weight	7.98 lbs. (3.621 kg)
Power	110-120V AC, 30 W
Certifications	FCC Class B, CE
Operating Temp.	0°C to 50°C (32°F to 122°F)
Storage Temp.	-40°C to 70°C (-40°F to 158°F)
Operating Humidity	20% to 95%, Non-Condensing
Storage Humidity	5% to 95%, 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 24-Port 10/100 + 1-Port Gigabit Switch + 1 miniGBIC, contact Linksys Technical Support at one of the phone numbers or Internet addresses below.

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Technical Support	800-326-7114
RMA (Return Merchandise Authorization) Issues	www.linksys.com (or call 949-271-5461)
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E-mail	support@linksys.com
Web	http://www.linksys.com
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