D-Link ™ xStack

Layer 3 Stackable Ethernet Switch

Hardware Installation and Getting Started Guide

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Information in this document is subject to change without notice.

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Table of Contents

Preface

This Manaul provides a basic introduction to hardware of the switch. It also contains setup and basic installation information. For more detailed installation and configuration instructions, please see the full version of User's Guide on the CD-ROM that came with your switch.

Section 1, Introduction - Describes the Switch..

Section 2, Installation- Helps you get started with the basic installation of the Switch and also describe the front panel, rear panel, side panels, and LED indicators of the Switch.

Section 3, Connecting the Switch - Tells how you can connect the Switch to your Ethernet/Fast Ethernet network.

Intended Readers

The *Manual* contains information for setup of the Switch. This manual is intended for network managers familiar with network management concepts and terminology.

Typographical Conventions

Convention	Description
[ ]	In a command line, square brackets indicate an optional entry. For example: [copy filename] means that optionally you can type copy followed by the name of the file. Do not type the brackets.
Bold font	Indicates a button, a toolbar icon, menu, or menu item. For example: Open the **File** menu and choose **Cancel**. Used for emphasis. May also indicate system messages or prompts appearing on your screen. For example: You have mail. Bold font is also used to represent filenames, program names and commands. For example: use the copy command.
Boldface Typewriter Font	Indicates commands and responses to prompts that must be typed exactly as printed in the manual.
Initial capital letter	Indicates a window name. Names of keys on the keyboard have initial capitals. For example: Click Enter.
Italics	Indicates a window name or a field. Also can indicate a variables or parameter that is replaced with an appropriate word or string. For example: type filename means that you should type the actual filename instead of the word shown in italic.
Menu Name > Menu Option	**Menu Name > Menu Option** Indicates the menu structure. **Device > Port > Port Properties** means the Port Properties menu option under the Port menu option that is located under the Device menu.

Notes, Notices, and Cautions

A **NOTE** indicates important information that helps you make better use of your device.

A **NOTICE** indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

A **CAUTION** indicates a potential for property damage, personal injury, or death.

Safety Instructions

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage. Throughout this safety section, the caution icon ( ) is used to indicate cautions and precautions that you need to review and follow.

⚠ Safety Cautions

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions.

- Observe and follow service markings.
  - Do not service any product except as explained in your system documentation.
  - Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to electrical shock.
  - Only a trained service technician should service components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
  - The power cable, extension cable, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide or contact your trained service provider.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.
- To help avoid damaging your system, be sure the voltage selection switch (if provided) on the power supply is set to match the power available at your location:
  - 115 volts (V)/60 hertz (Hz) in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
  - 100 V/50 Hz in eastern Japan and 100 V/60 Hz in western Japan
  - 230 V/50 Hz in most of Europe, the Middle East, and the Far East
- Also, be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cable(s). If you have not been provided with a power cable for your system or for any AC-powered option intended for your system, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or

remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.

- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.

- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

- Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.

- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications. Always follow your local/national wiring rules.

- When connecting or disconnecting power to hot-pluggable power supplies, if offered with your system, observe the following guidelines:

  - Install the power supply before connecting the power cable to the power supply.

  - Unplug the power cable before removing the power supply.

  - If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies.

- Move products with care; ensure that all casters and/or stabilizers are firmly connected to the system. Avoid sudden stops and uneven surfaces.

General Precautions for Rack-Mountable Products

Observe the following precautions for rack stability and safety. Also, refer to the rack installation documentation accompanying the system and the rack for specific caution statements and procedures.

- Systems are considered to be components in a rack. Thus, "component" refers to any system as well as to various peripherals or supporting hardware.

CAUTION: Installing systems in a rack without the front and side stabilizers installed could cause the rack to tip over, potentially resulting in bodily injury under certain circumstances. Therefore, always install the stabilizers before installing components in the rack. After installing system/components in a rack, never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and may result in serious injury.

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

- Always load the rack from the bottom up, and load the heaviest item in the rack first.

- Make sure that the rack is level and stable before extending a component from the rack.

- Use caution when pressing the component rail release latches and sliding a component into or out of a rack; the slide rails can pinch your fingers.

- After a component is inserted into the rack, carefully extend the rail into a locking position, and then slide the component into the rack.

- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- Ensure that proper airflow is provided to components in the rack.

- Do not step on or stand on any component when servicing other components in a rack.

NOTE: A qualified electrician must perform all connections to DC power and to safety grounds. All electrical wiring must comply with applicable local or national codes and practices.

CAUTION: Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

CAUTION: The system chassis must be positively grounded to the rack cabinet frame. Do not attempt to connect power to the system until grounding cables are connected. Completed power and safety ground wiring must be inspected by a qualified electrical inspector. An energy hazard will exist if the safety ground cable is omitted or disconnected.

Protecting Against Electrostatic Discharge

Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components, such as the microprocessor. You can do so by periodically touching an unpainted metal surface on the chassis.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

1. When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component in your system. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.

2. When transporting a sensitive component, first place it in an antistatic container or packaging.

3. Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads and an antistatic grounding strap.

<div style="border:1px solid black; text-align:center">

Section 1

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Introduction

Fast Ethernet

Gigabit Ethernet Technology

Switching Technology

Switch Description

Ports

Front-Panel Components

LED Indicators

Rear Panel Description

Side Panel Description

Fast Ethernet

The growing importance of LANs and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies are proposed to provide greater bandwidth and improve client/server response times. Among them, Fast Ethernet, or 100BASE-T, provides a non-disruptive, smooth evolution from 10BASE-T technology.

100Mbps Fast Ethernet is a standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Ethernet protocol.

Gigabit Ethernet Technology

Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100Mbps Fast Ethernet and a one hundred-fold increase over 10Mbps Ethernet. Since it is compatible with all 10Mbps and 100Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet are essential to coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times as well as significantly speed up the traffic between your subnetworks.

Gigabit Ethernet enables fast optical fiber connections to support video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same amount of time.

In addition, the phenomenal bandwidth delivered by Gigabit Ethernet is the most cost-effective method to take advantage of today and tomorrow's rapidly improving switching and routing internetworking technologies.

Switching Technology

Another key development pushing the limits of Ethernet technology is in the field of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or Fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by making it possible for a local area network to be divided into different segments, which are not competing with each other for network transmission capacity, and therefore decreasing the load on each segment.

The Switch acts as a high-speed selective bridge between the individual segments. Traffic that needs to go from one segment to another (from one port to another) is automatically forwarded by the Switch, without interfering with any other segments (ports). This allows the total network capacity to be multiplied, while still maintaining the same network cabling and adapter cards.

For Fast Ethernet or Gigabit Ethernet networks, a switch is an effective way of eliminating problems of chaining hubs beyond the "two-repeater limit." A switch can be used to split parts of the network into different collision domains, for example, making it possible to expand your Fast Ethernet network beyond the 205-meter network diameter limit for 100BASE-TX networks. Switches supporting both traditional 10Mbps Ethernet and 100Mbps Fast Ethernet are also ideal for bridging between existing 10Mbps networks and new 100Mbps networks.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router and the setup and maintenance required make routers relatively impractical. Today's switches are an ideal solution to most kinds of local area network congestion problems.

Switch Description

D-Link's next-generation xStack switches are high port-density Layer 3 stackable switches that combine the ultimate performance with fault tolerance, security, management functions with flexibility and ease-of-use. All these features typically found in the more expensive chassis-based solutions, at the price of a stackable!

Device Ports

DGS-3324SRi:

- 24 10/100/1000BASE-T Gigabit ports

- 8 Combo SFP

- 6 10Gigabit stacking ports

- 1 CompactFlash slot

- 1 console port

DGS-3324SR:

- 24 10/100/1000BASE-T Gigabit ports

- 4 Combo SFP

- 2 10Gigabit stacking ports

- 1 console port

DXS-3326GSR:

- 24 SFP

- 4 Combo 10/100/1000BASE-T Gigabit ports

- 2 10Gigabit stacking ports

- 1 open slot

- 1 console port

DXS-3350SR:

- 48 10/100/1000BASE-T Gigabit ports

- 4 Combo SFP

- 2 10Gigabit stacking ports

- 1 open slot

- 1 console port

NOTE: For example on DGS-3324SR, the combo ports on the Switch, numbered 21-24 cannot be used simultaneously with the corresponding SFP ports, numbered 21-24. If both ports are in use at the same time (ex. port 24 of the SFP and port 24 of the 1000BASE-T), the SFP ports will take priority over the combo ports and render the 1000BASE-T ports inoperable.

Installing the SFP ports

The Switch is equipped with 4 SFP (Small Form Factor Portable) ports, which are to be used with fibre optical transceiver cabling in order to uplink various other networking devices for a gigabit link that may span great distances. These 4 SFP ports support full-duplex transmissions, have auto-negotiation and can be used with DEM-310GT (1000BASE-LX), DEM-311GT (1000BASE -SX), DEM-314GT (1000BASE -LH) and DEM-315GT (1000BASE -ZX) transceivers. See the figure below for installing the SFP ports in the Switch.
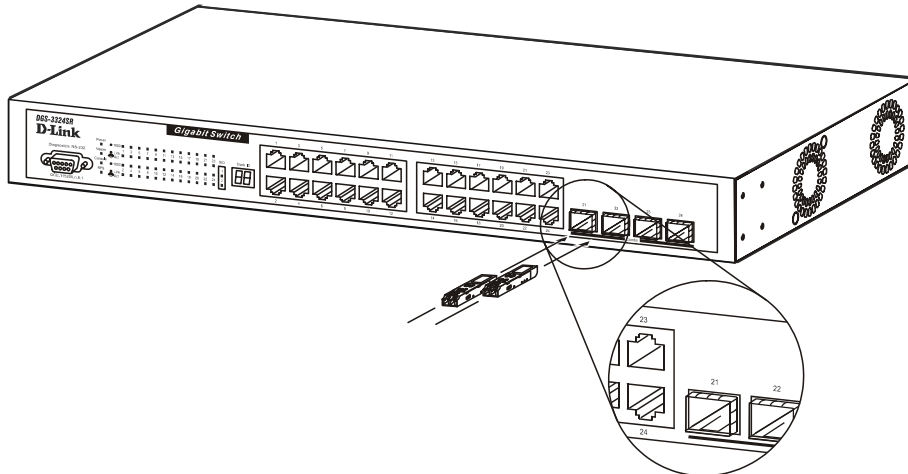

Figure 1- 1. Inserting the fibe-optic transceivers into the DGS-3324SR

Front-Panel Components

The front panel of the Switch consists of LED indicators for Power, Master, Console, RPS, SIO (stacking) and for Link/Act for each port on the Switch. The front panel also includes a seven-segment LED indicating the Stack ID number, as well as gigabit Ethernet ports.
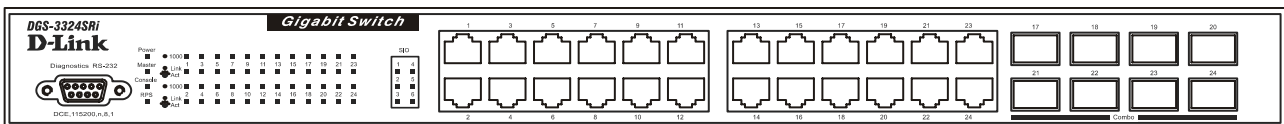
DGS-3324SRi

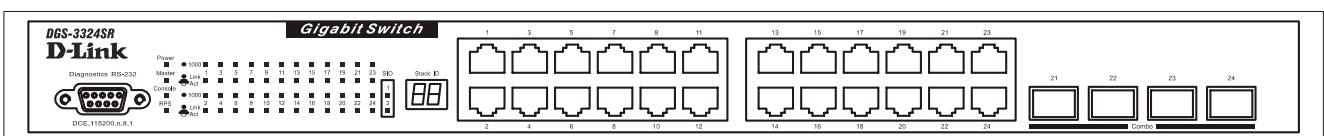**Figure 1- 2. Front Panel View of the DGS-3324SRi as shipped**

DGS-3324SR

Figure 1- 3. Front Panel View of the DGS-3324SR as shipped
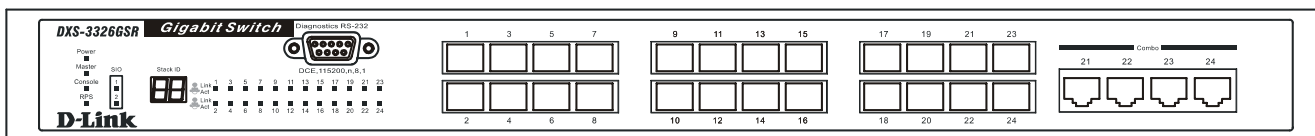
DXS-3326GSR

Figure 1- 4. Front Panel View of the DXS-3326GSR as shipped
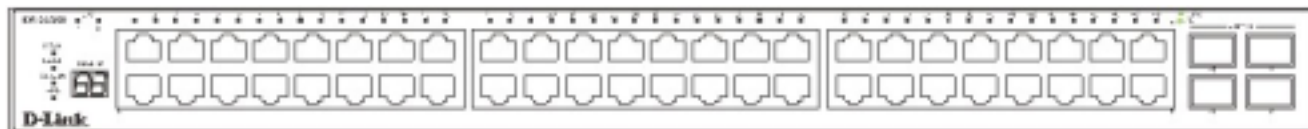
DXS-3350SR

Figure 1- 5. Front Panel View of the DXS-3350SR as shipped

Comprehensive LED indicators display the status of the Switch and the network.

LED Indicators

The Switch supports LED indicators for Power, Master, Console, RPS, SIO (stacking indicators) and Port LEDs. The following shows the LED indicators for the Switch along with an explanation of each indicator.
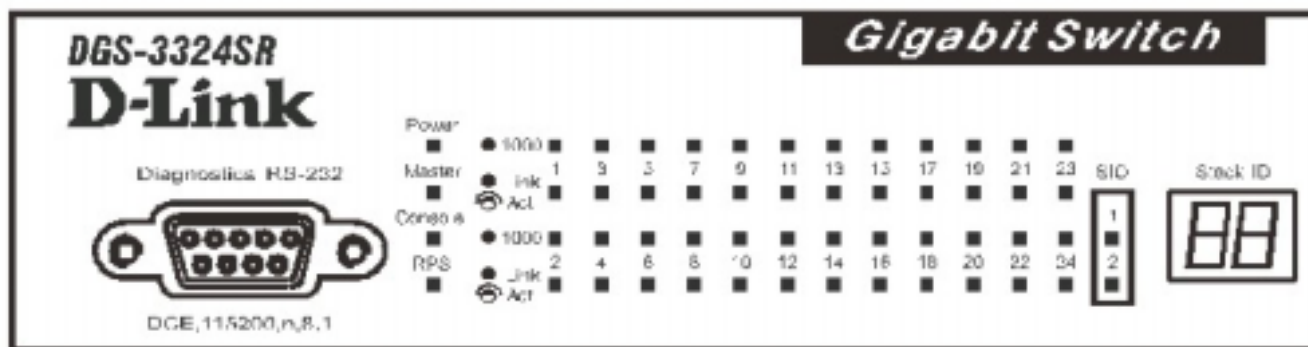

Figure 1- 6. LED Indicators

LED	Description
Power	This LED will light green after the Switch is powered on to indicate the ready state of the device. The indicator is dark when the Switch is powered off.
Master	This LED will light solid green when the Switch is configured to be a master switch of a switch stack in a ring topology or when it is in use as a stand-alone switch. This LED will remain dark if the Switch is not configured to be a master switch of a switch stack.
Console	This LED should blink during the Power-On Self Test (POST). When the POST is finished successfully, the LED goes dark. This indicator will light solid green when the Switch is being logged into via out-of-band/local console management through the RS-232 console port in the front of the Switch using a straight-through serial cable. This LED will light solid amber if the Power-On-Self-Test has failed.
RPS	This LED will be lit solid amber when the internal power has failed and the RPS has taken over the power supply to the Switch. Otherwise, it will remain dark.
Port LEDs	One row of LEDs for each port is located above the ports on the front panel. The first LED is for the top port and the second one is for the bottom ports. A solid light denotes activity on the port while a blinking light indicates a valid link. These LEDs will remain dark if there is

	no link/activity on the port.
Stacking Ports (SIO)	There are two LEDs in the front of the Switch marked SIO, and they relate to the two 10-gigabit stacking ports at the rear of the Switch. These LEDs are marked 1 and 2 and will light solid green to denote activity on the port, while a blinking light will indicate a valid link.
Stack ID	These two seven segment LEDs display the current switch stack order of the Switch while in use. Possible numbers to be displayed range from 1-12.

Rear Panel Description

DGS-3324SRi

The rear panel of the Switch contains an AC power connector, 6 10-gigabit stacking ports, a redundant power supply connector and slot to insert the CompactFlash card (storage media accessory).
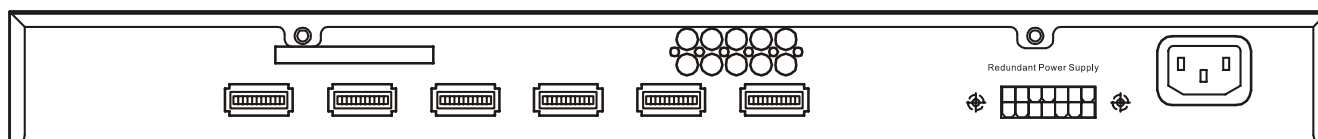
Figure 1- 7. Rear panel view of DGS-3324SRi

DGS-3324SR

The rear panel of the Switch contains an AC power connector, 2 10-gigabit stacking ports, a redundant power supply connector and a system fan.
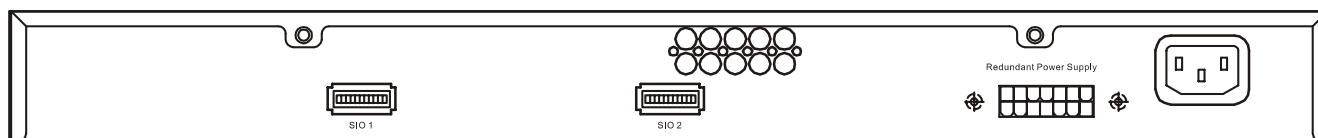
Figure 1- 8. Rear panel view of DGS-3324SR

DXS-3326GSR

The rear panel of the Switch contains an AC power connector, an optional module slot for uplinking 2 XFP fibre-optic ports, 2 10-gigabit stacking ports, a redundant power supply connector and a system fan.
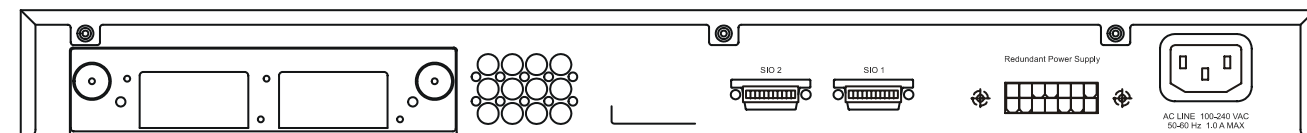
Figure 1- 9. Rear panel view of DXS-3326GSR

DXS-3350SR

The rear panel of the Switch contains an AC power connector, an optional module slot for uplinking 2 XFP fibre-optic ports, 2 10-gigabit stacking ports, a redundant power supply connector, a RS-232 DCE console port for Switch management and a system fan.
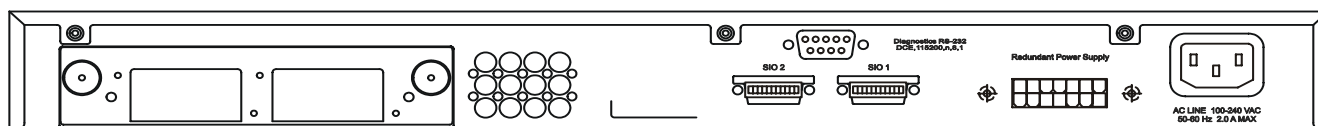
Figure 1- 10. Rear panel view of DXS-3350SR

The AC power connector is a standard three-pronged connector that supports the power cord. Plug-in the female connector of the provided power cord into this socket, and the male side of the cord into a power outlet. The Switch automatically adjusts its power setting to any supply voltage in the range from 100 ~ 240 VAC at 50 ~ 60 Hz.

The rear panel also includes an outlet for an optional external power supply. When power fails, the optional external RPS will take over all the power immediately and automatically.

Side Panel Description

DGS-3324SRi & DGS-3324SR

The right-hand side panel of the Switch contains 2 system fans, while the left hand panel includes a heat vent.

The system fans are used to dissipate heat. The sides of the system also provide heat vents to serve the same purpose. Do not block these openings, and leave at least 6 inches of space at the rear and sides of the Switch for proper ventilation. Be reminded that without proper heat dissipation and air circulation, system components might overheat, which could lead to system failure.

Figure 1- 11. Side Panels

DXS-3326GSR & DXS-3350SR

The right-hand side panel of the Switch contains 3 system fans, while the left hand panel includes 2 heat vents.

The system fans are used to dissipate heat. The sides of the system also provide heat vents to serve the same purpose. Do not block these openings, and leave at least 6 inches of space at the rear and sides of the Switch for proper ventilation. Be reminded that without proper heat dissipation and air circulation, system components might overheat, which could lead to system failure.
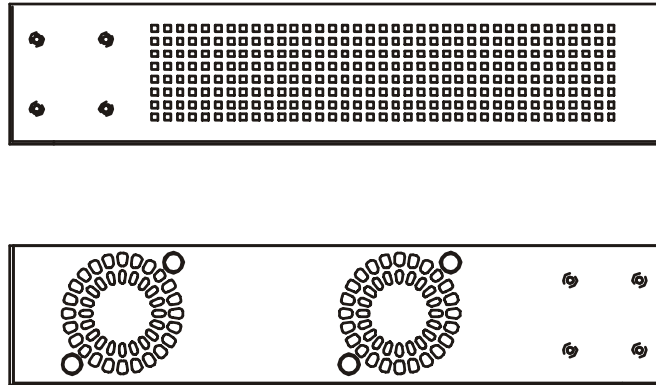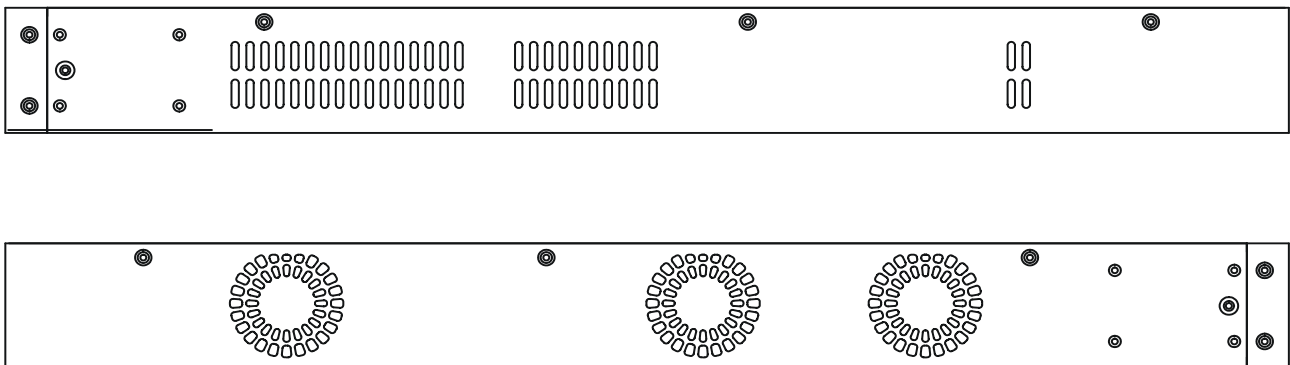

Figure 1- 12. Side Panels

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Installation

Package Contents

Open the shipping carton of the Switch and carefully unpack its contents. The carton should contain the following items:

- One xStack Stackable Switch
- One AC power cord
- This H/W Installation & Getting Started Guide
- Mounting kit (two brackets and screws)
- Four rubber feet with adhesive backing
- RS-232 console cable
- One Cable Infinband 4X50CM
- One CD Kit for User's Guide/CLI/D-View module
- One CD Kit for D-View 5.1 Trial version.
- One Generic QIG
- Registration card & China Warranty Card (for China only)

If any item is found missing or damaged, please contact your local D-Link Reseller for replacement.

Before You Connect to the Network

The site where you install the Switch may greatly affect its performance. Please follow these guidelines for setting up the Switch.

- Install the Switch on a sturdy, level surface that can support at least 6.6 lb. (3 kg) of weight. Do not place heavy objects on the Switch.
- The power outlet should be within 1.82 meters (6 feet) of the Switch.
- Visually inspect the power cord and see that it is fully secured to the AC power port.
- Make sure that there is proper heat dissipation from and adequate ventilation around the Switch. Leave at least 10 cm (4 inches) of space at the front and rear of the Switch for ventilation.
- Install the Switch in a fairly cool and dry place for the acceptable temperature and humidity operating ranges.
- Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- When installing the Switch on a level surface, attach the rubber feet to the bottom of the device. The rubber feet cushion the Switch, protect the casing from scratches and prevent it from scratching other surfaces.

Installing the Switch Without the Rack

When installing the Switch on a desktop or shelf, the rubber feet included with the Switch should first be attached. Attach these cushioning feet on the bottom at each corner of the device. Allow enough ventilation space between the Switch and any other objects in the vicinity.
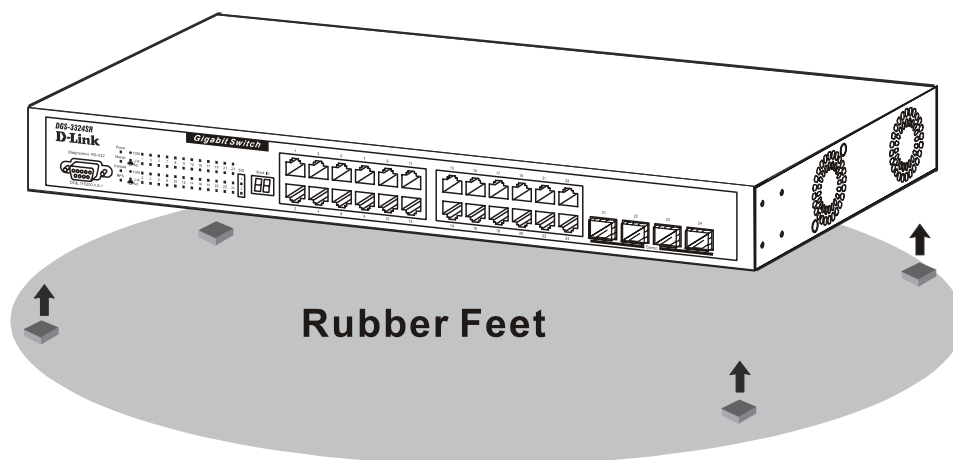
Figure 2- 1. Prepare Switch for installation on a desktop or shelf

Installing the Switch in a Rack

The Switch can be mounted in a standard 19" rack. Use the following diagrams to guide you.
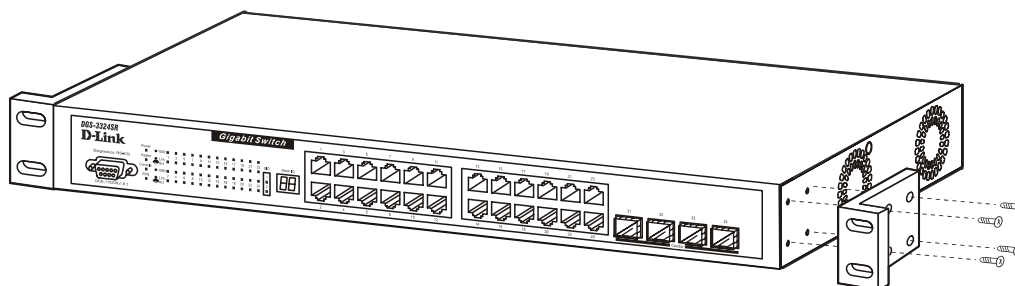

Figure 2- 2. Fasten mounting brackets to Switch

Fasten the mounting brackets to the Switch using the screws provided. With the brackets attached securely, you can mount the Switch in a standard rack as shown in Figure 2-3 on the following page.
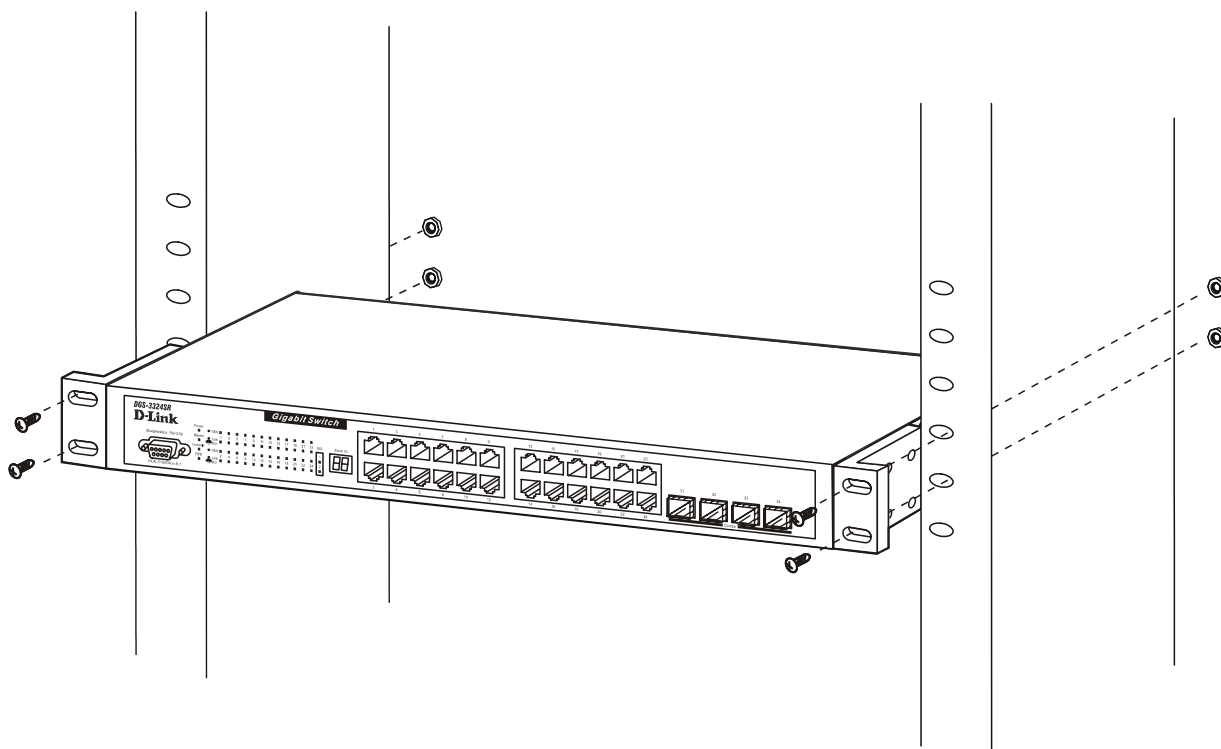
Mounting the Switch in a Standard 19" Rack

Figure 2-3. Installing Switch in a rack

Power On

Plug one end of the AC power cord into the power connector of the Switch and the other end into the local power source outlet.

After the Switch is powered on, the LED indicators will momentarily blink. This blinking of the LED indicators represents a reset of the system.

Power Failure

As a precaution, in the event of a power failure, unplug the Switch. When power is resumed, plug the Switch back in.

The Optional Module

At the rear of the DXS-3326GSR & DXS-3350SR resides an optional module slot. This slot may be equipped with a 2-port 10GE XFP Uplink Module, sold separately. Adding the DEM-420X optional module will allow the administrator to add 2 fibre-optic ports which will transmit information at a rate of 10 gigabits a second. These two ports are compliant with standard IEEE 802.3ae, support full-duplex transmissions only and can be used with XFP MSA compliant transceivers. To install the module in the DXS-3326GSR & DXS-3350SR, follow the simple steps listed below.

CAUTION: Before adding the optional module, make sure to disconnect all power sources connected to the Switch. Failure to do so may result in an electrical shock which may cause damage, not only to the individual but to the Switch as well.

At the back of the Switch to the left is the slot for the optional module, as shown in Figure 2-4. This slot should be covered with a faceplate that can be easily removed by loosening the screws and pulling off the plate.

Optional Module Slot
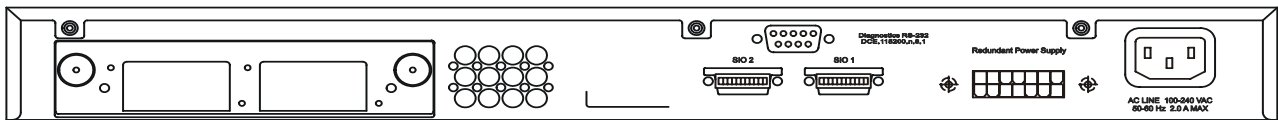
Figure 2- 4. Optional Module slot at the rear of the DXS-3350SR

After removing the faceplate, remove the DEM-420X optional module from its box. The front panel should resemble the drawing represented in the following figure.
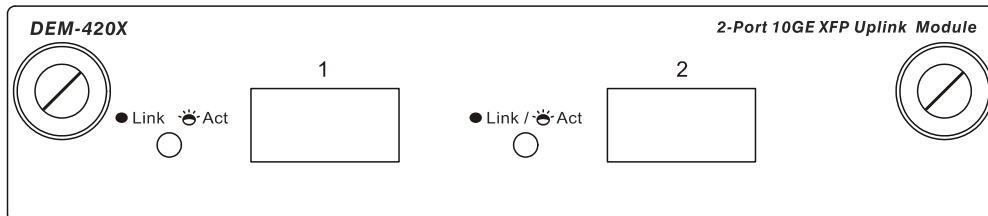
Figure 2- 5. Front Panel of the DEM-420X

Take the module and gently slide it in to the available slot at the rear of the Switch until it reaches the back, as shown in the following figure. At the back of the slot are two sets of plugs that must be connected to the module. Gently, but firmly push in on the module to secure it to the Switch. The module should fit snugly into the corresponding receptors.
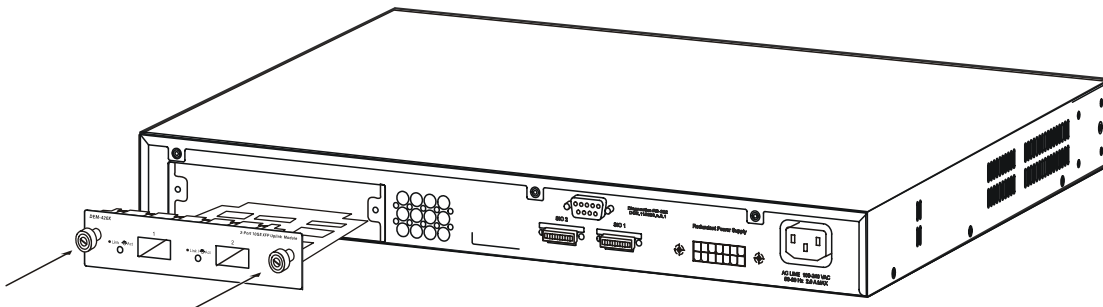
Figure 2- 6. Inserting the optional module into the DXS-3350SR

Now tighten the two screws at adjacent ends of the module into the available screwholes on the Switch. The upgraded DXS-3350SR is now ready for use.
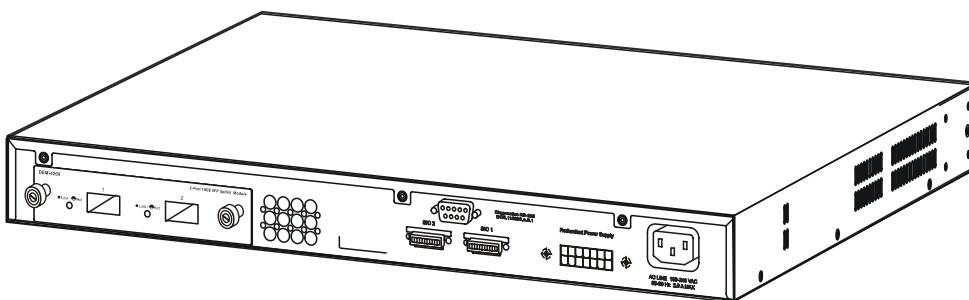
Figure 2- 7. DXS-3350SR with optional module installed.

External Redundant Power System

The Switch supports an external redundant power system.
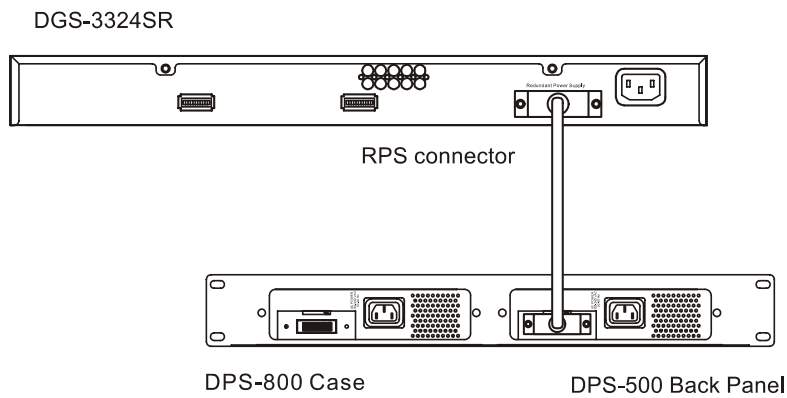
Figure 2- 8. The DGS-3324SR with the DPS-500 Redundant External Power Supply
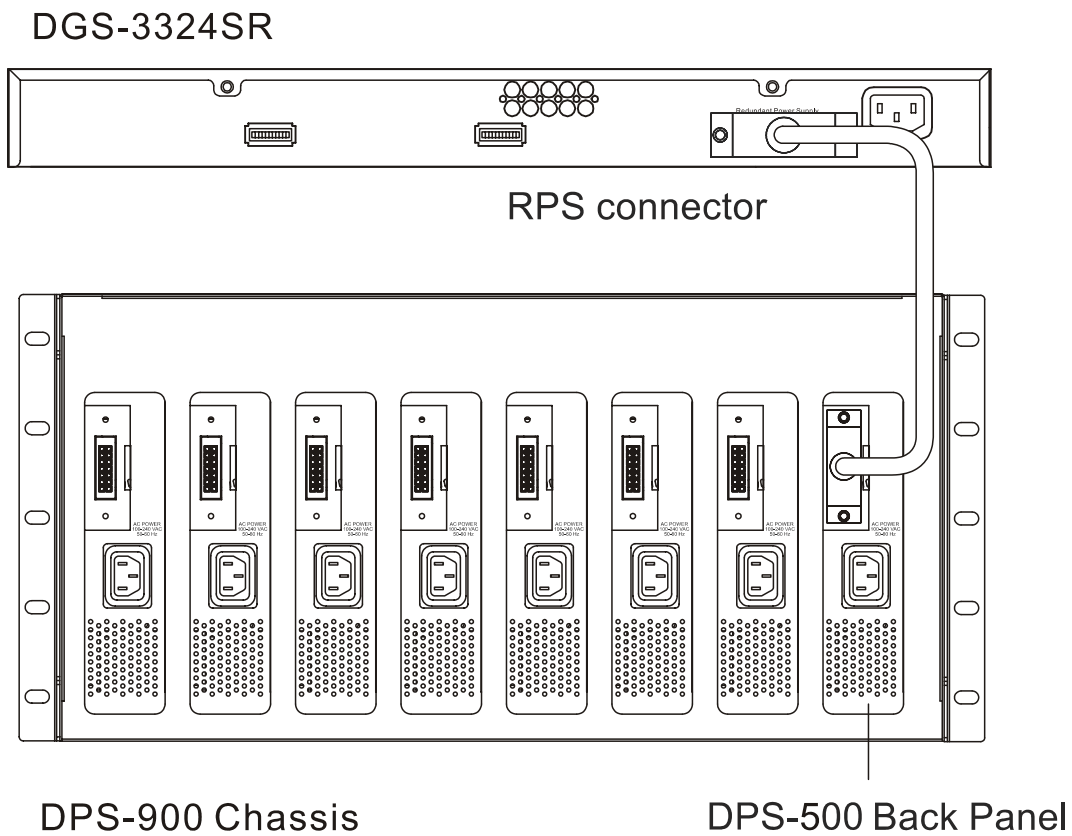
Figure 2- 9. The DGS-3324SR with the DPS-900 chassis RPS

NOTE: See the DPS-500 documentation for more information.

CAUTION: Do not use the Switch with any redundant power system other than the DPS-500.

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<div align="right">

Section 3

</div>

Connecting The Switch

Switch To End Node

Switch To Hub or Switch

Connecting To Network Backbone or Server

Stacking and the xStack

NOTE: All high-performance NWay Ethernet ports can support both MDI-II and MDI-X connections.

Switch To End Node

End nodes include PCs outfitted with a 10, 100 or 1000 Mbps RJ 45 Ethernet/Fast Ethernet Network Interface Card (NIC) and most routers.

An end node can be connected to the Switch via an UTP/STP cable. The end node should be connected to any of the 1000BASE-T ports of the Switch.
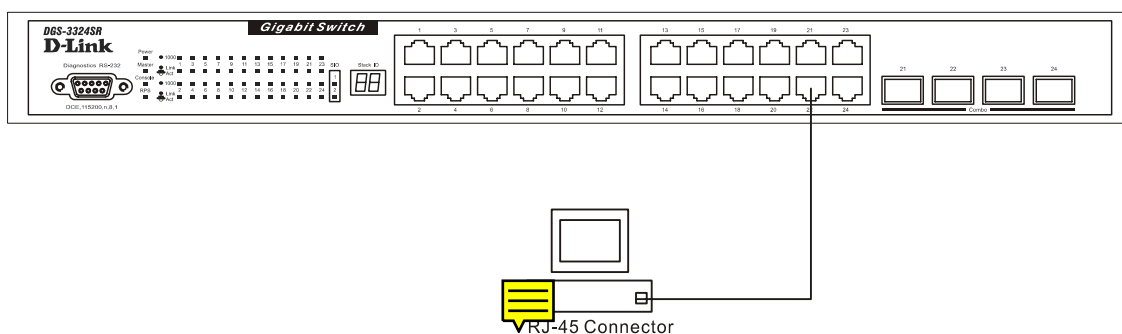
Figure 3-1. Switch connected to an end node

The Link/Act LEDs for each UTP port will light green or amber when the link is valid. A blinking LED indicates packet activity on that port.

Switch to Hub or Switch

These connections can be accomplished in a number of ways using a normal cable.

- A 10BASE-T hub or switch can be connected to the Switch via a Category 3, 4 or 5 UTP/STP cable.

- A 100BASE-TX hub or switch can be connected to the Switch via a Category 5 UTP/STP cable.

- A 1000BASE-T switch can be connected to the Switch via a Category 5e UTP/STP cable.

- A switch supporting a fiber optic uplink can be connected to the Switch's SFP ports via fiber-optic cabling.
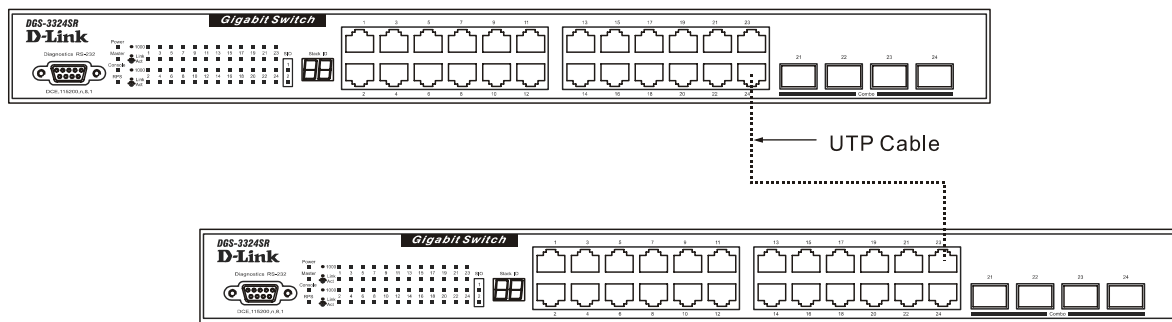
Figure 3- 2. Switch connected to a port on a hub or switch using UTP cable
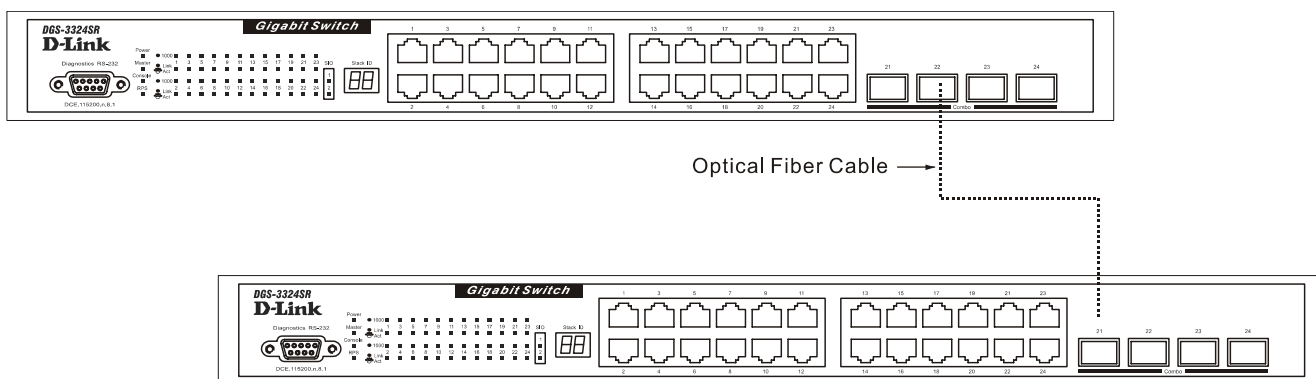
Figure 3- 3. Switch connected to switch using fiber-optic cabling

Connecting To Network Backbone or Server

Take for example on DGS-3324SR, the 4 SFP ports and the 24 1000BASE-T ports are ideal for uplinking to a network backbone, server or server farm. The copper ports operate at a speed of 1000, 100 or 10Mbps in full or half duplex mode. The fiber optic ports can operate at 1000Mbps in full duplex mode only.

Connections to the Gigabit Ethernet ports are made using fiber optic cable or Category 5e copper cable, depending on the type of port. A valid connection is indicated when the Link LED is lit.
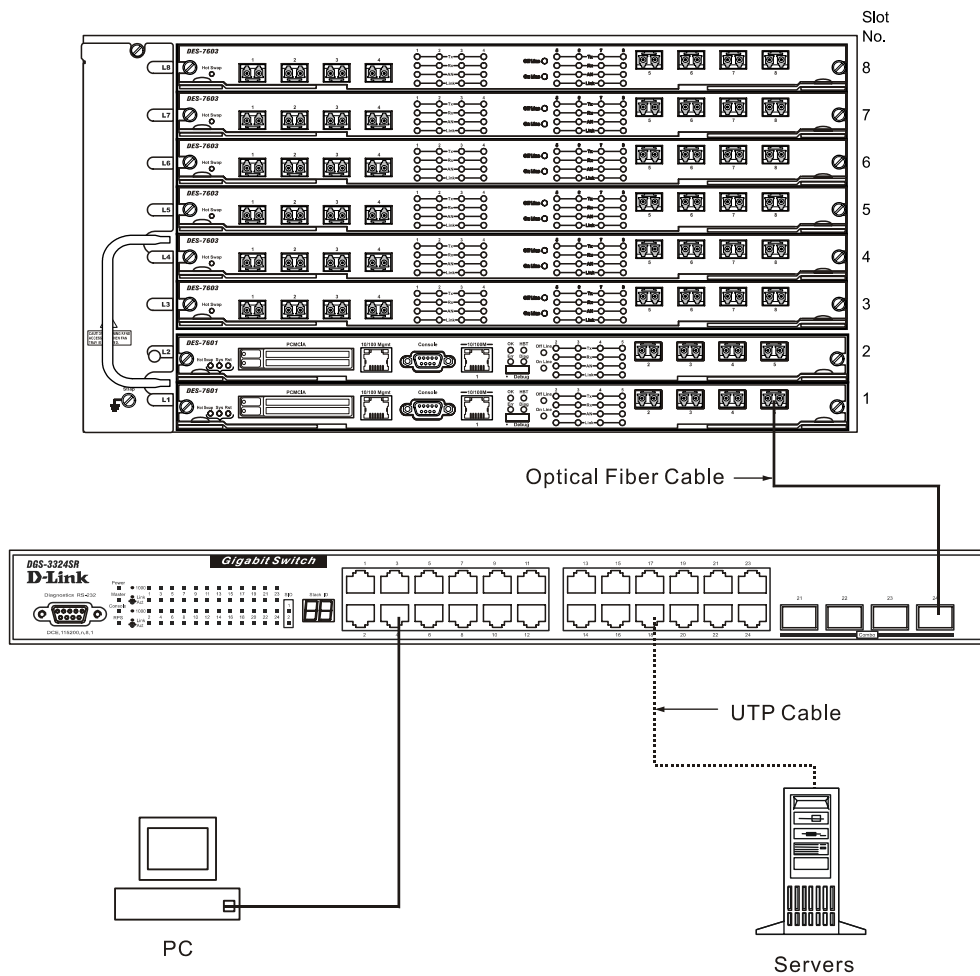
Figure 3- 4. Uplink Connection to a server, PC or switch stack.

Stacking and the xStack

The Switch is equipped with 2 10-gigabit stacking ports at the rear of the device, as seen in the following figure. These stacking ports may be used to stack to a master switch to be used in a switch stack.
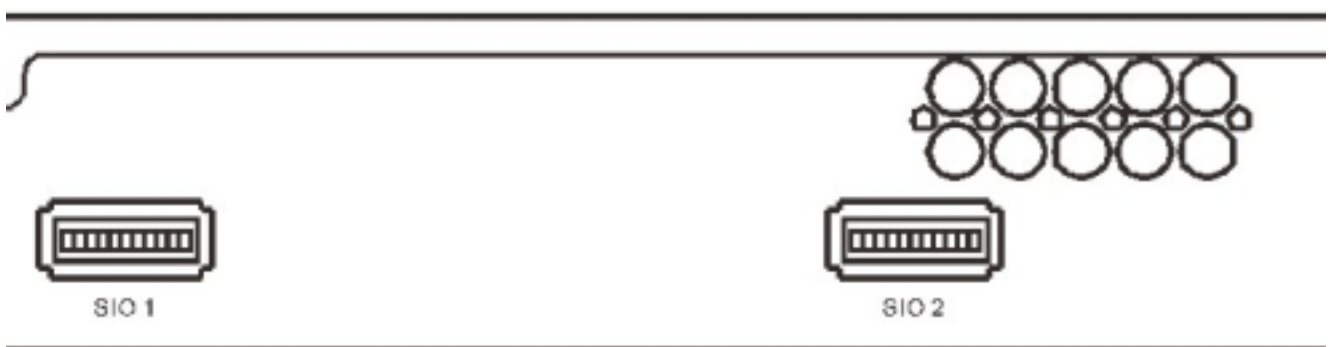
Figure 3- 5. SIO 1 and SIO 2 Stacking ports at the rear of the DGS-3324SR

These two stacking ports, named SIO 1 and SIO 2 can be used with other stacking switches for a scalable stacking solution of up to 384 ports in a star or ring toplogy. These two stacking ports have corresponding LEDs at the front of the Switch, labeled SIO 1 and SIO 2 and will light solid green whenever the port is in use. The seven-segment LED Stack ID to the left of the SIO LEDs on the front of the Switch will display the Stack ID number of the Switch in a switch stack.
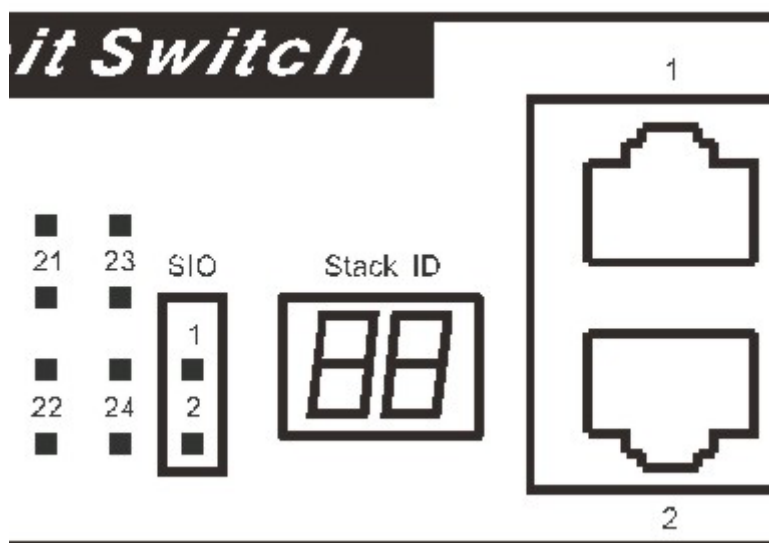
Figure 3- 6. Stacking LEDs at the front of the DGS-3324SR

The Switch can be stacked in a star or ring topology, as previously mentioned. For a star architecture, only one of the 2 Gigabit stacking ports will be in use. This port will be connected to the master switch of the switch stack and will act as a slave switch of the stack. The administrator may use either of the two available stacking ports to achieve this arcitecture.

See the following diagram for an example of stacking in a star architecture with DXS-3350SR
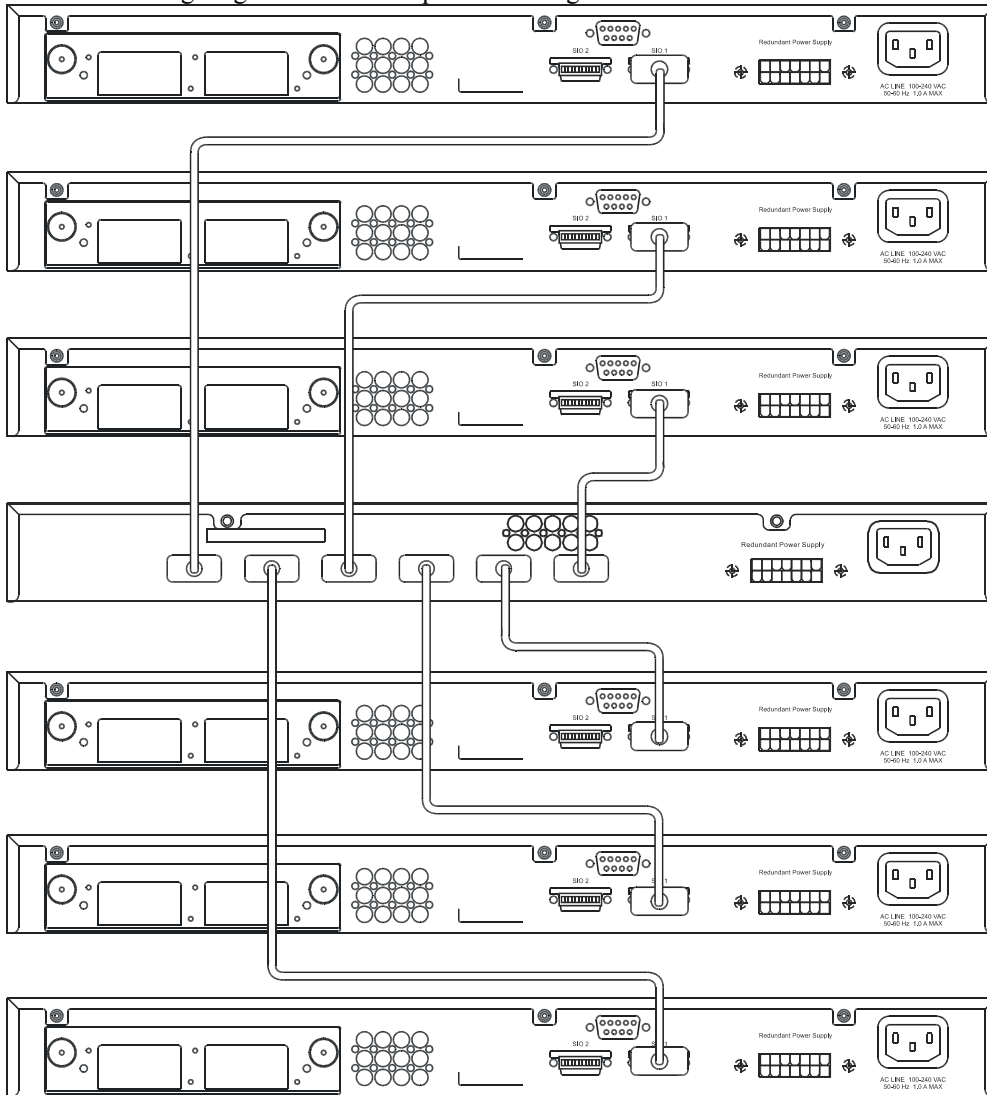
Figure 3- 7. Stacking in a Star Architecture

For stacking in a ring architecture, the SIO ports will be in use, as shown in the following diagram. Up to 12 xStack switches may be stacked together in the ring architecture switch stack, though there are limitations on stacking, which will be discussed in the following section.
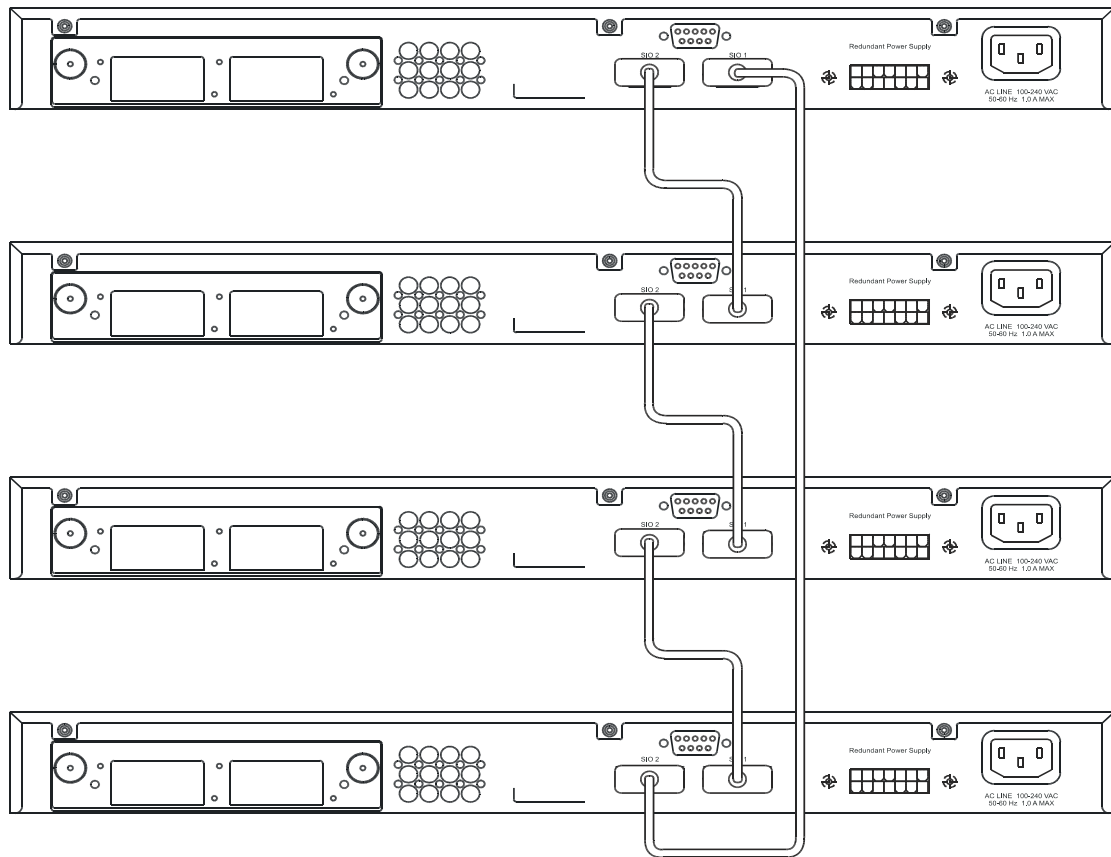
Figure 3- 8. Stacking in a Ring Architecture

NOTICE: Do not connect the stacked Switch group to the network until you have properly configured all Switches for stacking. An improperly configured Switch stack can cause a broadcast storm.

Stacking Limitations Utilizing a Ring or Star Toplogy

The Switches listed in the table below can all be stacked, but there is a limitation as to the number of Switches that can be included in a given stack. This limitation arises from a concept called a Token Cost. This Token Cost is used for communication between switches in a switch stack. Some of the switches have 2 as their token cost, while others are 4, and the 10G uplink ports have a Token Cost of 2. The maximum accumulated Token Cost in a given stack must be less than 32.

There is an additional limitation in that a maximum of 12 Switch boxes can be included in a given switch stack, using a ring topology.

In order to make the task of determining if a given set of Switches (from the table below) can be successfully stacked, use the following formula:

Token Cost * Number of Switches ≤ 32

Model Name	Token Cost
DGS-3324SRi	2
DGS-3324SR	2
DES-3352SR	2
DXS-3350SR	4

	6 (with 10G uplink)
DXS-3326GSR	2
	4 (with 10G uplink)

Table 3- 1. Switches and their corresponding token cost

Stacking In a Ring Topology

For example:

All of the stacked switches are identical.

You want to stack as many DGS-3324SR switches as possible.

To calculate the maximum number of DGS-3324SR switches in the ring stack, use the following formula:

Token Cost * Number of Switches ≤ 32

2 * Number of Switches ≤ 32

Number of Switches ≤ 32/2

Number of Switches ≤ 16

For this example, a maximum of 16 DGS-3324SR switches can be ring stacked according to the previous calculations, but we must remember that there is a maximum limitation of 12 switches, so the actual maximum number of DGS-3324SR switches that can be stacked together in the ring topology is twelve.

Adding a different switch type to an existing stack

In this example, there are three different switch types, each with different token costs. There is one DGS-3324SR (Token Cost = 2), two DXS-3350SR (Token Cost = 4), and three DXS-3326GSR (Token Cost = 2). In this case the total Token Cost would be:

(1 * 2) + (2 * 4) + (3 * 2) = 16

If you then wanted to add the maximum number of DGS-3324SR Switches (Token Cost = 2) to this stack:

(2 + 2 * 4 + 3 * 2) + Number of Switches * 2 ≤ 32

16 + Number of Switches * 2 ≤ 32
Number of Switches * 2 ≤ 32 – 16 = 16

Number of Switches ≤ 16/2 = 8

So, in this case, you could add extra eight DGS-3324SR switches to this ring stack. The entire stack would then consist of nine DGS-3324SR (Token Cost = 2), two DXS-3350SR (Token Cost = 4), three DXS-3326GSR (Token Cost = 2). This gives a total Token Cost for the stack of:

9 * 2 + 2 * 4 + 3 * 2 ≤ 32

Although the Token Cost is less than 32, the number of switch boxes is 14, which exceeds the maximum number of 12. Thus, only extra six DGS-3324SRs can be added to the ring stack.

For further examples, we can:

- Make a ring stack consisting of 4 DXS-3350SRs (one with module), 3 DGS-3324SRs, 3 DXS-3326GSRs (no modules). Our switch count would equal 10 and our token cost would equal 28 (16 + 6 + 6 = 28 ≤ 32). Success!

- Make a ring stack consisting of 4 DGS-3324SRs, 5 DXS-3326GSRs (no modules), 3 DXS-3350SRs (no modules). Our switch count would equal 12 and our token cost would equal 30(8 + 10 + 12 = 30 ≤ 32). Success!

- Add four 10G modules to an existing ring stack (2 + 2 + 2+2 = 8). Using a stack consisting of 6 DGS-3324SRs and 6 DXS-3326GSRs (12 + 20 = 32). This is the maximum number of switch boxes allowed in a ring stack. Our switch count stays at 12 and our token cost becomes 32 (2 + 2 + 2 + 2 + 24 = 32 ≤ 32). Success!

Stacking In a Star Topology

In this case, the DGS-3324SRi is the Master Switch in a star topology. And up to 6 slave switches can be stacked with Master Stackable Switch. Check the following examples as a reference guide.

For examples, we can:

- Make a star stack consisting of 1 DGS-3324SRi (Master), 6 DXS-3350SRs (no modules). Our switch count would equal 6+1 and our token cost would equal 26 (2 + 24 = 26 ≤ 32). Success!
- Make a star stack consisting of 1 DGS-3324SRi (Master), 1 DGS-3324SR, 2 DXS-3326GSRs (no modules), 3 DXS-3350SRs (one with module). Our switch count would equal 6+1 and our token cost would equal 22(2 + 2 + 4 + 14 = 22 ≤ 32). Success!

From these examples, we can see that there is a myriad of combinations possible for adding switches and modules to a given stack. Yet, you must keep in mind three very important points in configuring the stack:

1. **The total Token Cost of switches stacked must not exceed 32.**

2. **The total switch count of switches stacked in a ring topology cannot exceed 12.**

3. **The total switch count of switches stacked in a star topology cannot exceed 6+1.**

NOTE: The total token cost of switches in a switch stack cannot exceed 32. Surpassing this token cost limitation will result in failure of the Switch stack and render the switches in it inoperable.

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Warranty and Registration Information

(All countries and regions excluding USA)

Wichtige Sicherheitshinweise

1. Bitte lesen Sie sich diese Hinweise sorgfältig durch.

2. Heben Sie diese Anleitung für den spätern Gebrauch auf.

3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Vervenden Sie keine Flüssig- oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.

4. Um eine Beschädigung des Gerätes zu vermeiden sollten Sie nur Zubehörteile verwenden, die vom Hersteller zugelassen sind.

5. Das Gerät is vor Feuchtigkeit zu schützen.

6. Bei der Aufstellung des Gerätes ist auf sichern Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen. Verwenden Sie nur sichere Standorte und beachten Sie die Aufstellhinweise des Herstellers.

7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.

8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.

9. Die Netzanschlußsteckdose muß aus Gründen der elektrischen Sicherheit einen Schutzleiterkontakt haben.

10. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollete auch nichts auf der Leitung abgestellt werden.

11. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.

12. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.

13. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. Elektrischen Schlag auslösen.

14. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.

15. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

    a. Netzkabel oder Netzstecker sint beschädigt.

    b. Flüssigkeit ist in das Gerät eingedrungen.

    c. Das Gerät war Feuchtigkeit ausgesetzt.

    d. Wenn das Gerät nicht der Bedienungsanleitung ensprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

    e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

    f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

16. Bei Reparaturen dürfen nur Orginalersatzteile bzw. den Orginalteilen entsprechende Teile verwendet werden. Der Einsatz von ungeeigneten Ersatzteilen kann eine weitere Beschädigung hervorrufen.

17. Wenden Sie sich mit allen Fragen die Service und Repartur betreffen an Ihren Servicepartner. Somit stellen Sie die Betriebssicherheit des Gerätes sicher.

18. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu verwenden, Für einen Nennstrom bis 6A und einem Gerätegewicht größer 3kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75mm2 einzusetzen.

WARRANTIES EXCLUSIVE

IF THE D-LINK PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT D-LINK'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. D-LINK NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF D-LINK'S PRODUCTS.

D-LINK SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY THE CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLECT, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING OR OTHER HAZARD.

LIMITATION OF LIABILITY

IN NO EVENT WILL D-LINK BE LIABLE FOR ANY DAMAGES, INCLUDING LOSS OF DATA, LOSS OF PROFITS, COST OF COVER OR OTHER INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES ARISING OUT THE INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE OR INTERRUPTION OF A D- LINK PRODUCT, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY. THIS LIMITATION WILL APPLY EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

IF YOU PURCHASED A D-LINK PRODUCT IN THE UNITED STATES, SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

Limited Warranty

Hardware:

D-Link warrants each of its hardware products to be free from defects in workmanship and materials under normal use and service for a period commencing on the date of purchase from D-Link or its Authorized Reseller and extending for the length of time stipulated by the Authorized Reseller or D-Link Branch Office nearest to the place of purchase.

This Warranty applies on the condition that the product Registration Card is filled out and returned to a D-Link office within ninety (90) days of purchase. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card.

If the product proves defective within the applicable warranty period, D-Link will provide repair or replacement of the product. D-Link shall have the sole discretion whether to repair or replace, and replacement product may be new or reconditioned. Replacement product shall be of equivalent or better specifications, relative to the defective product, but need not be identical. Any product or part repaired by D-Link pursuant to this warranty shall have a warranty period of not less than 90 days, from date of such repair, irrespective of any earlier expiration of original warranty period. When D-Link provides replacement, then the defective product becomes the property of D-Link.

Warranty service may be obtained by contacting a D-Link office within the applicable warranty period, and requesting a Return Material Authorization (RMA) number. If a Registration Card for the product in question has not been returned to D-Link, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided. If Purchaser's circumstances require special handling of warranty correction, then at the time of requesting RMA number, Purchaser may also propose special procedure as may be suitable to the case.

After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. The package must be mailed or otherwise shipped to D-Link with all costs of mailing/shipping/insurance prepaid. D-Link shall never be responsible for any software, firmware, information, or memory data of Purchaser contained in, stored on, or integrated with any product returned to D-Link pursuant to this warranty.

Any package returned to D-Link without an RMA number will be rejected and shipped back to Purchaser at Purchaser's expense, and D-Link reserves the right in such a case to levy a reasonable handling charge in addition mailing or shipping costs.

Software:

Warranty service for software products may be obtained by contacting a D-Link office within the applicable warranty period. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card. If a Registration Card for the product in question has not been returned to a D-Link office, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided when requesting warranty service. The term "purchase" in this software warranty refers to the purchase transaction and resulting license to use such software.

D-Link warrants that its software products will perform in substantial conformance with the applicable product documentation provided by D-Link with such software product, for a period of ninety (90) days from the date of purchase from D-Link or its Authorized Reseller. D-Link warrants the magnetic media, on which D-Link provides its software product, against failure during the same warranty period. This warranty applies to purchased software, and to replacement software provided by D-Link pursuant to this warranty, but shall not apply to any update or replacement which may be provided for download via the Internet, or to any update which may otherwise be provided free of charge.

D-Link's sole obligation under this software warranty shall be to replace any defective software product with product which substantially conforms to D-Link's applicable product documentation. Purchaser assumes responsibility for the selection of appropriate application and system/platform software and associated reference materials. D-Link makes no warranty that its software products will work in combination with any hardware, or any application or system/platform software product provided by any third party, excepting only such products as are expressly represented, in D-Link's applicable product documentation as being compatible. D-Link's obligation under this warranty shall be a reasonable effort to provide compatibility, but D-Link shall have no obligation to provide compatibility when there is fault in the third-party hardware or software. D-Link makes no warranty that operation of its software products will be uninterrupted or absolutely error-free, and no warranty that all defects in the software product, within or without the scope of D-Link's applicable product documentation, will be corrected.

Limited Warranty
(USA Only)

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and

- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type ("Warranty Period"), except as otherwise stated herein.

Limited Lifetime Warranty for the Product(s) is defined as follows:

- Hardware for as long as the original customer/end user owns the product, or five years after product discontinuance, whichever occurs first (excluding power supplies and fans)

- Power Supplies and Fans Three (3) Year

- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link's sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund at D-Link's sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be warranted for the remainder of the original Warranty Period from the date or original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same.

- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.

The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to **D-Link Systems, 17595 Mt. Herrman Street, Fountain Valley, CA. 92708.** D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability: TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY

Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

Trademarks: D-Link is a registered trademark of D-Link Systems, Inc. Other trademarks or registered trademarks are the property of their respective manufacturers or owners.

CE Mark Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A 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 in accordance with the instructions, may cause harmful interference to radio communication. 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 can be determined 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 and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

For detailed warranty outside the United States, please contact corresponding local D-Link office.

> *Register online your D-Link product at*
> *http://support.dlink.com/register/*

Registration Card

Print, type or use block letters.

Your name: Mr./Ms _____
Organization: _____ Dept. _____
Your title at organization: _____
Telephone: _____ Fax:_____
Organization's full address: _____
_____
Country: _____
Date of purchase (Month/Day/Year): _____

Product Model	Product Serial No.	* Product installed in type of computer (e.g., Compaq 486)	* Product installed in computer serial No.

(* Applies to adapters only)

Product was purchased from:

Reseller's name: _____
Telephone: _____ Fax:_____
Reseller's full address: _____
_____
_____

Answers to the following questions help us to support your product:

1. Where and how will the product primarily be used?
□Home □Office □Travel □Company Business □Home Business □Personal Use

2. How many employees work at installation site?
□1 employee □2-9 □10-49 □50-99 □100-499 □500-999 □1000 or more

3. What network protocol(s) does your organization use ?
□XNS/IPX □TCP/IP □DECnet □Others_____

4. What network operating system(s) does your organization use ?
□D-Link LANsmart □Novell NetWare □NetWare Lite □SCO Unix/Xenix □PC NFS □3Com 3+Open
□Banyan Vines □DECnet Pathwork □Windows NT □Windows NTAS □Windows '95
□Others_____

5. What network management program does your organization use ?
□D-View □HP OpenView/Windows □HP OpenView/Unix □SunNet Manager □Novell NMS
□NetView 6000 □Others_____

6. What network medium/media does your organization use ?
□Fiber-optics □Thick coax Ethernet □Thin coax Ethernet □10BASE-T UTP/STP
□100BASE-TX □100BASE-T4 □100VGAnyLAN □Others_____

7. What applications are used on your network?
□Desktop publishing □Spreadsheet □Word processing □CAD/CAM
□Database management □Accounting □Others_____

8. What category best describes your company?
□Aerospace □Engineering □Education □Finance □Hospital □Legal □Insurance/Real Estate □Manufacturing
□Retail/Chainstore/Wholesale □Government □Transportation/Utilities/Communication □VAR
□System house/company □Other_____

9. Would you recommend your D-Link product to a friend?
□Yes □No □Don't know yet

10. Your comments on this product?

PLEASE
PLACE STAMP
HERE

TO:

D-Link ®