



***DES-1048G***  
***10/100/1000 Mbps***  
***Stand-alone Switch***  
***User's Guide***

---

---

First Edition (October, 2000)  
6DES1048G..01

## 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. Verwenden 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 autorisiertem 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 entsprechend 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.

## **FCC Warning**

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in an residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

## **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.

### **Warnung!**

Dies ist ein Produkt der Klasse A. Im Wohnbereich kann dieses Produkt Funkstörungen verursachen. In diesem Fall kann vom Benutzer verlangt werden, angemessene Massnahmen zu ergreifen.

### **Precaución!**

Este es un producto de Clase A. En un entorno doméstico, puede causar interferencias de radio, en cuyo caso, puede requerirse al usuario para que adopte las medidas adecuadas.

### **Attention!**

Ceci est un produit de classe A. Dans un environnement domestique, ce produit pourrait causer des interférences radio, auquel cas l'utilisateur devrait prendre les mesures adéquates.

### **Attenzione!**

Il presente prodotto appartiene alla classe A. Se utilizzato in ambiente domestico il prodotto può causare interferenze radio, nel cui caso è possibile che l'utente debba assumere provvedimenti adeguati.

# Limited Warranty

## Hardware:

D-Link warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following periods measured from date of purchase from D-Link or its Authorized Reseller:

<u>Product Type</u>	<u>Warranty Period</u>
Complete products	One year
Spare parts and spare kits	90 days

The one-year period of warranty on complete products applies on condition that the product's 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. Failing such timely registration of purchase, the warranty period shall be limited to 90 days.

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 will ordinarily reimburse Purchaser for mailing/shipping/insurance expenses incurred for return of defective product in accordance with this warranty. 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 licence 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.

## **LIMITATION OF WARRANTIES**

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, NEGLIGENCE, 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.

## **D-Link Offices for Registration and Warranty Service**

The product's Registration Card, provided at the back of this manual, must be sent to a D-Link office. To obtain an RMA number for warranty service as to a hardware product, or to obtain warranty service as to a software product, contact the D-Link office nearest you. An addresses/ telephone/fax list of D-Link offices is provided in the back of this manual.

## **Trademarks**

Copyright ©2000 D-Link Corporation.

Contents subject to change without prior notice.

D-Link is a registered trademark of D-Link Corporation/D-Link Systems, Inc.

All other trademarks belong to their respective proprietors.

## **Copyright Statement**

No part of this publication may be reproduced in any form or by any means or used to make any derivative such as translation, transformation, or adaptation without permission from D-Link Corporation/D-Link Systems Inc., as stipulated by the United States Copyright Act of 1976

## Table of Contents

<b>ABOUT THIS GUIDE</b> .....	<b>VII</b>
CONVENTIONS .....	VII
OVERVIEW OF THIS USER’S GUIDE.....	VII
<b>INTRODUCTION</b> .....	<b>1</b>
FAST ETHERNET TECHNOLOGY .....	1
GIGABIT ETHERNET TECHNOLOGY .....	1
SWITCHING TECHNOLOGY .....	2
DES-1048G 10/100/1000 MBPS STAND-ALONE SWITCH .....	3
<i>General Description of Switch</i> .....	3
<i>Performance Features</i> .....	3
<i>Ports</i> .....	4
<i>Optional GBIC Port Insert</i> .....	4
<b>UNPACKING AND SETUP</b> .....	<b>5</b>
UNPACKING .....	5
SETUP .....	5
DESKTOP OR SHELF INSTALLATION.....	6
RACK INSTALLATION .....	6
POWER ON .....	7
<i>Power Failure</i> .....	7
<b>IDENTIFYING EXTERNAL COMPONENTS</b> .....	<b>8</b>
FRONT PANEL.....	8
REAR PANEL.....	8
SIDE PANELS.....	9
LED INDICATORS .....	9
<i>UTP Port LEDs</i> .....	9
<i>GBIC Port LEDs</i> .....	10
<b>CONNECTING THE SWITCH</b> .....	<b>11</b>
SWITCH TO END NODE.....	11
SWITCH TO HUB OR SWITCH .....	12
CONNECTING TO NETWORK BACKBONE OR SERVER.....	13
<b>SWITCH MANAGEMENT</b> .....	<b>14</b>
LOCAL CONSOLE MANAGEMENT .....	14
<i>Console port (RS-232 DTE)</i> .....	14
<i>User Interface</i> .....	15
<i>Software Features</i> .....	17
Port Speed .....	17
Duplex .....	17
Flow Control.....	17
<b>TECHNICAL SPECIFICATIONS</b> .....	<b>18</b>
<b>CABLES AND CONNECTORS</b> .....	<b>20</b>

---

# ***ABOUT THIS GUIDE***

This User's guide tells you how to install the DES-1048G, how to connect it to an Ethernet network, and how to set the configuration using the built-in console interface.

---

## **Conventions**

---

For simplicity, this documentation uses the terms "Switch" (first letter upper case) to refer to the DES-1048G Ethernet Switch, and "switch" (first letter lower case) to refer to all Ethernet switches, including the DES-1048G.

---

## **Overview of this User's Guide**

---

- ◆ Chapter 1, Introduction. Describes the Switch and its features as well as a brief discussion of relevant switching technologies.
- ◆ Chapter 2, Unpacking and Setup. Helps you get started with the basic installation of the switch.
- ◆ Chapter 3, Identifying External Components. Describes the front panel, rear panel, side panel and LED indicators of the switch.
- ◆ Chapter 4, Connecting the Switch. Tells how you can connect the DES-1048G to an Ethernet/Fast Ethernet network and network backbone.
- ◆ Chapter 5, Switch Management. Talks about Local Console Management via the RS-232 DTE console port and other aspects about how to manage the Switch.
- ◆ Appendix A, Technical Specifications. Lists the technical specifications of the switch.
- ◆ Appendix B, Cables and Connectors. Describes the RJ-45 receptacle/connector, straight and crossover cables and standard pin assignments.





---

# ***INTRODUCTION***

This section describes the features of the Switch, as well as giving some background information about Fast Ethernet, Gigabit Ethernet, and switching technology.

---

## **Fast Ethernet Technology**

---

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 is 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 don't compete with each other for network transmission capacity, giving a decreased load on each.

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.

---

## DES-1048G 10/100/1000 Mbps Stand-alone Switch

---

### ***General Description of Switch***

The DES-1048G is a stand-alone unmanaged switch. It is equipped with forty-eight ports providing dedicated 10 or 100 Mbps bandwidth. These ports can be used for connecting PCs, servers, and hubs. The forty-eight dual speed ports use standard twisted-pair cabling and are ideal for segmenting networks into small, connected subnets. Each port can support up to 200 Mbps of throughput in full duplex mode. In addition, the Switch is equipped with two Gigabit (GBIC) fiber optic uplink ports enabling convenient access to a server or network backbone for all the clients served by the Switch. This stand-alone Switch enables the network to use some of the most demanding multimedia and imaging applications concurrently with other user applications without creating bottlenecks. The built-in console interface can be used to individually configure each port for Speed, Full or Half duplex operation, and IEEE 802.3x Flow Control in full duplex mode.

### ***Performance Features***

- ◆ IEEE 802.3 compliant (10/100 Mbps TP ports)
- ◆ IEEE 802.3u compliant (10/100 Mbps TP ports)
- ◆ IEEE 802.3z compliant (for optional GBIC port insert)
- ◆ IEEE 803.3 ac compliant
- ◆ IEEE 802.3x flow control in full duplex mode (back pressure in half duplex)
- ◆ Auto-negotiation (NWay) between 10Mbps/100Mbps, half duplex or full duplex and flow control for 10/100 TP ports
- ◆ Full and half-duplex for both 10Mbps and 100Mbps connections
- ◆ 2 optional Gigabit Ethernet (GBIC) ports located on the rear panel. The GBIC ports operate at full duplex only. Full duplex allows the switch port to simultaneously transmit and receive data, and only works with connections to full duplex capable end stations and switches. Connections to a hub must take place at half duplex
- ◆ Store and forward packet switching
- ◆ Auto-polarity detection and correction of incorrect polarity on the 10/100Mbps TP ports
- ◆ Data forwarding rate 14,880 pps per port at 100% of wire-speed for 10Mbps speed
- ◆ Data forwarding rate 148,810 pps per port at 100% of wire-speed for 100Mbps speed
- ◆ Data forwarding rate 1,488,100 pps per port at 100% of wire-speed for 1000Mbps speed
- ◆ Data filtering rate eliminates all error packets, runts, etc. at 14,880 pps per port at 100% of wire-speed for 10Mbps speed
- ◆ Data filtering rate eliminates all error packets, runts, etc. at 148,810 pps per port at 100% of wire-speed for 100Mbps speed

## ***Performance Features (continued)***

- ◆ Data filtering rate eliminates all error packets, runts, etc. at 1,488,100 pps per port at 100% of wire-speed for 1000Mbps speed
- ◆ Support static filtering (based on MAC address)
- ◆ Support 2 IEEE 802.3p defined priority queues
- ◆ Forwarding 64 to 1522 byte frames with correct CRC checksum
- ◆ Layer 2 switching based on MAC address and VLAN ID
- ◆ Address handling : auto-learning , auto-aging
- ◆ Address table : 8 - 12K
- ◆ Buffer size: 3 Megabytes
- ◆ Broadcast storm control
- ◆ RS-232 DTE console port for setting port speed, duplex mode, and flow control of the Switch via a connection to a console terminal.

## ***Ports***

- ◆ 16 or 24 High-performance ports for connecting to end stations, servers and hubs (MDI-X 10/100 Ethernet UTP ports and 1 MDI-X/MDI-II Uplink port).
- ◆ All UTP ports can auto-negotiate between 10Mbps/100Mbps, half-duplex, or full duplex and flow control.
- ◆ Two optional rear panel GBIC interface for connecting to another switch, server or network backbone.
- ◆ RS-232 DTE Diagnostic port (console port) for setting up and managing the Switch via a connection to a console terminal or PC using a terminal emulation program.

## ***Optional GBIC Port Insert***

- ◆ 1 or 2 GBIC port insert modules available
- ◆ Accepts 1000BASE-SX, 1000BASE-LX and 1000LH
- ◆ Hot swappable
- ◆ IEEE 802.3x compliant Flow Control support for full duplex operation
- ◆ Supports full duplex 1000Mbps operation only
- ◆ Per port packet buffer: 2Mbytes

---

# UNPACKING AND SETUP

---

This chapter provides unpacking and setup information for the DES-1048G Fast Ethernet/Gigabit Switch.

---

## Unpacking

---

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

- ◆ One DES-1048G Fast Ethernet/Gigabit Switch
- ◆ One AC power cord
- ◆ This User's Guide CD-ROM
- ◆ Four rubber feet with adhesive backing
- ◆ RS-232 Console Cable
- ◆ Six screws and two brackets for rack mounting

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

---

## Setup

---

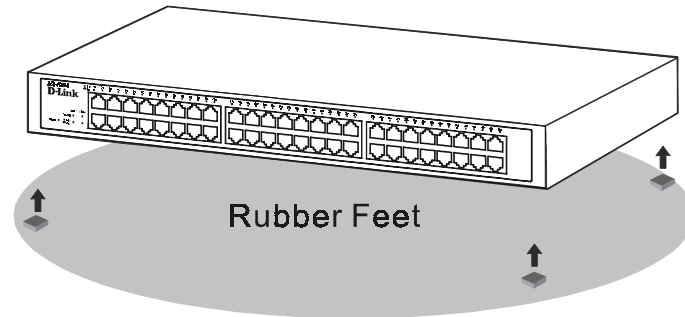
The site where you install the DES-1048G Switch may greatly affect its performance. Please follow these guidelines for setting up the switch.

- ◆ Install the switch on a sturdy, level surface that can support at least 6 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 of space at the front and rear of the switch for ventilation.
- ◆ Install the switch in a fairly cool and dry place. See Appendix A, Technical Specifications 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.

## Desktop or Shelf Installation

---

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.



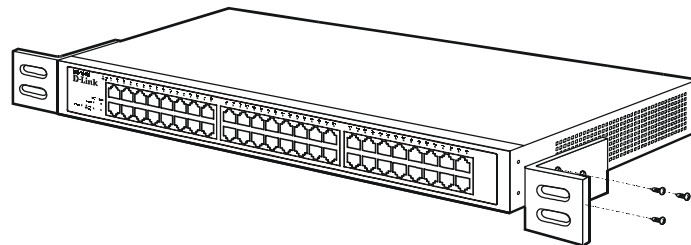
**Figure 2-1 DES-1048G Switch installed on a Desktop or Shelf**

---

## Rack Installation

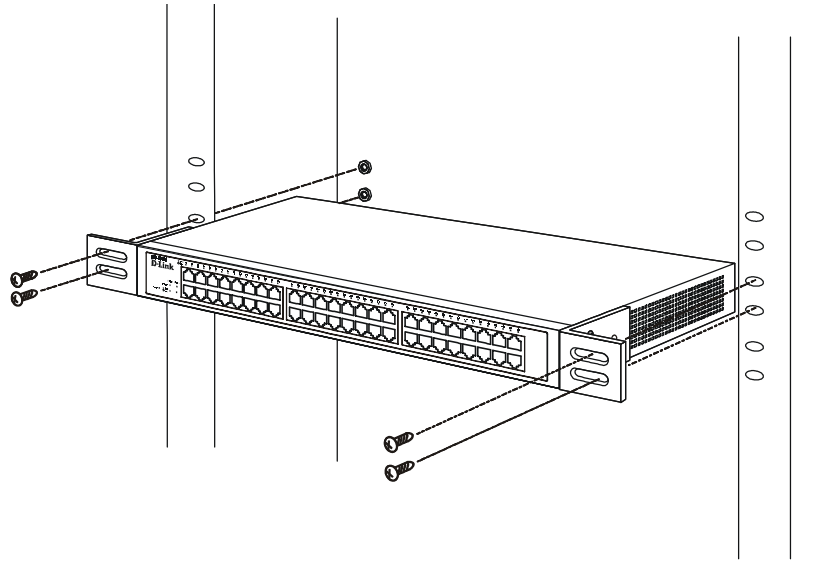
---

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.



**Figure 2-3 Mount Switch in 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.

## IDENTIFYING EXTERNAL COMPONENTS

This chapter describes the front panel display, the rear panel, and LED indicators of the DES-1048G.

### Front Panel

The front panel of the Switch consists of an LED indicator for Status, two indicators for the optional GBIC ports and two indicators for each UTP copper port. Forty-eight 10/100 Mbps twisted-pair ports are arranged in two rows on the front panel with odd numbered ports making up the top row and even numbered ports along the bottom.

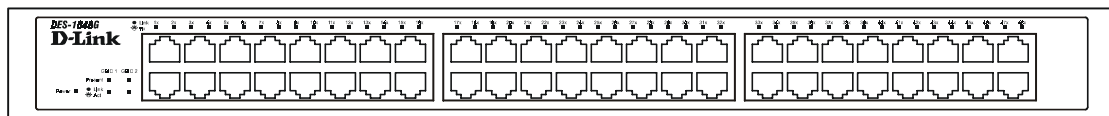


Figure 3-1. Front panel view of the Switch

### Rear Panel

The rear panel contains an RS-232 DTE console port for setting up and managing the Switch via a connection to a console terminal or PC using a terminal emulation program, the AC power connector and two slots for adding GBIC ports. 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. Supported input voltages range from 100 ~ 240 VAC at 50 ~ 60 Hz.

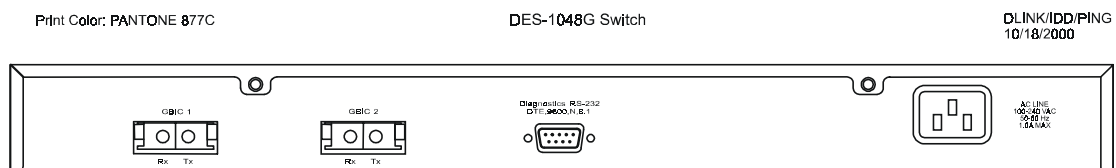
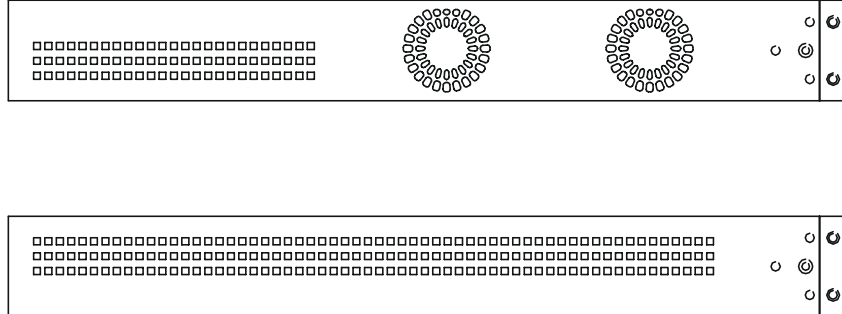


Figure 3-2. Rear panel view of the Switch



## Side Panels

The right side panel of the Switch contains two system fans. The left side panel contains heat vents.



**Figure 3-3. Side panel view of the Switch.**

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. 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.

## LED Indicators

The LED indicators are located on the front panel of the Switch. These indicators are described below.

**Status** Located near the left lower corner of the front panel, this LED indicates four different states as follows:

***Solid Red*** upon power up (less than 2 seconds)

***Solid Orange*** during the power up self-test

***Solid Green*** during normal operation

***Solid Red*** (following the power up self-test) indicates the self-test has failed

### UTP Port LEDs

**Link/Activity** Located on the upper left corner of each UTP port, this LED indicates a valid link if displaying a steady green light, and will blink when data is being transmitted via that port connection.

**10/100 Mbps** On the upper right corner of each twisted-pair port, this LED will light when the connection speed is operating at 100 Mbps. An unlit LED indicates a connection speed of 10 Mbps if the port has a valid link.

## ***GBIC Port LEDs***

The GBIC module LEDs are located on the front of the Switch next to the Status LED.

**Present** Steady green indicates the presence of a functioning GBIC port. This will be unlit otherwise.

**Link/Activity** Solid green indicates a link in this port. Blinking green indicates data being transmitted through the port.

---

# CONNECTING THE SWITCH

---

This chapter describes how to connect the DES-1048G to your Ethernet network.

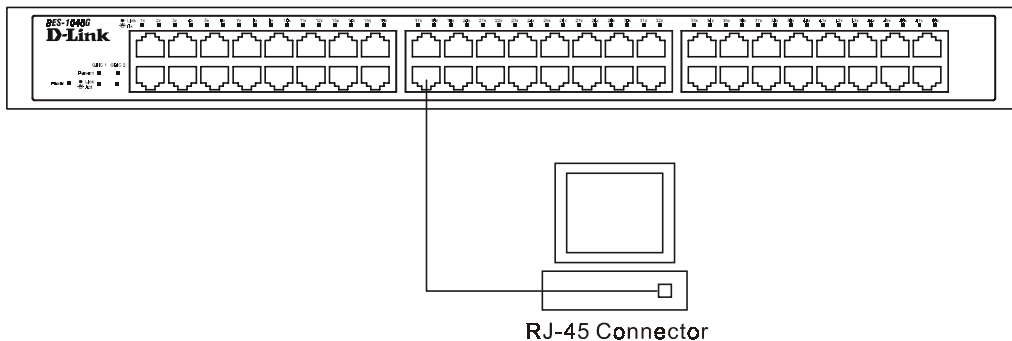
---

## Switch to End Node

---

End nodes include PCs outfitted with a 10, 100 or 10/100 Mbps RJ-45 Ethernet/Fast Ethernet Network Interface Card (NIC) and most routers. The RJ-45 UTP ports on NICs and most routers are MDI-II. When using a normal straight-through cable, an MDI-II (typically found on NICs and routers) port must connect to an MDI-X port (such as any of the 48 UTP ports).

An end node can be connected to the Switch via a two-pair Category 3, 4, 5 UTP/STP straight cable (be sure to use Category 5 UTP or STP cabling for 100 Mbps Fast Ethernet connections). End nodes can be connected to any of the forty-eight RJ-45 UTP ports of the DES-1048G.



**Figure 4-1. Switch connected to an End Node**

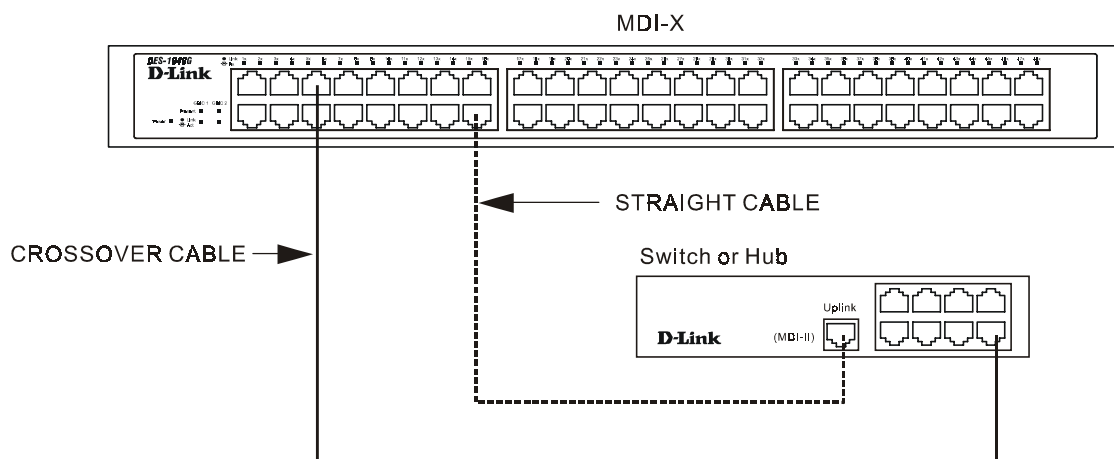
The green Link/Act LEDs for each UTP port will be lit only if the link is successful. The LED on the right side of the port indicates port speed, it will be lit for 100 Mbps connections, otherwise it will remain dark. A blinking LED on the left side indicates activity in that port.

## Switch to Hub or Switch

These connections can be accomplished in a number of ways. The most important consideration is that when using a normal, straight-through cable, the connection should be made between a normal crossed port (Ports 1–48) and an uplink (MDI-II) port. If you are using a crossover cable, the connection must be made from a crossed port to another crossed port.

- ◆ A 10BASE-T hub or switch can be connected to the Switch via a two-pair Category 3, 4 or 5 UTP/STP straight through cable.
- ◆ A 100BASE-TX hub or switch can be connected to the Switch via a two-pair Category 5 UTP/STP straight through cable.

If you are connecting to another switch or hub via an uplink port (MDI-II) use a straight through cable as shown in Figure 4-2 below.



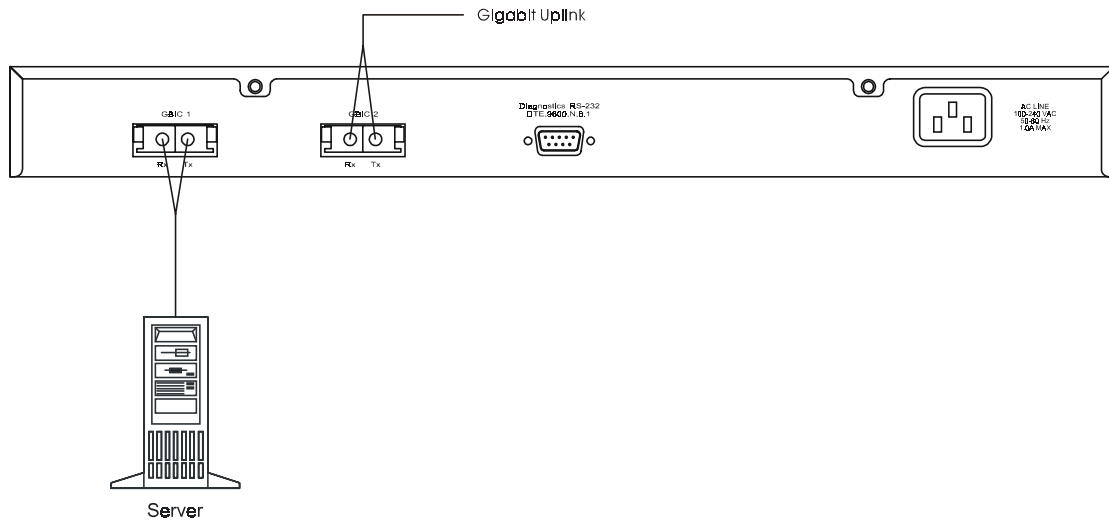
**Figure 4-2 Switch to Switch or Hub**

---

## Connecting to Network Backbone or Server

---

The optional GBIC fiber optic ports are ideal for uplinking to a network backbone or network server via 1000BASE-SX, 1000BASE-LX or 1000BASE-LH fiber optic cable. These ports operate at 1000 Mbps in full duplex mode only. GBIC port modules can be installed or taken out without powering off or disconnecting the Switch.



**Figure 4-3 Gigabit Uplink Connection**

---

# SWITCH MANAGEMENT

---

This chapter discusses the features used to manage the Switch, and explains important points regarding these features. Configuring the Switch is discussed in detail.

---

## Local Console Management

---

Local console management involves the administration of the DES-1048G Switch via a direct connection to the RS-232 DTE console port. This is an Out-Of-Band connection, meaning that it is on a different circuit than normal network communications, and thus works even when the network is down.

The local console management connection involves a terminal or PC running terminal emulation software to operate the switch's built-in console program. Using the console program, a network administrator can manage and control the functions of the Switch.

### ***Console port (RS-232 DTE)***

Out-of-band management requires connecting a terminal, such as a VT-100 or a PC running terminal emulation program (such as HyperTerminal, which is automatically installed with Microsoft Windows) a to the RS-232 DTE console port of the Switch. Switch management using the RS-232 DTE console port is called *Local Console Management* to differentiate it from management done via management platforms, such as D-View, HP OpenView, etc.

The console port is set for the following configuration:

- ◇ Baud rate: 9,600
- ◇ Data width: 8 bits
- ◇ Parity: none
- ◇ Stop bits: 1
- ◇ Flow Control: None

Make sure the terminal or PC you are using to make this connection is configured to match these settings.

If you are having problems making this connection on a PC, make sure the emulation is set to VT-100. You will be able to set the emulation by clicking on the **File** menu in you HyperTerminal window, click on **Properties** in the drop down menu and click the **Settings** tab, here you will find the **Emulation** options. If you still don't see anything, try hitting <Ctrl> + r to refresh the screen.

Once you have connected to the console port on the switch, you should see a window like that pictured in Figure 5-1. If the screen appears but is blank, press “Control” and “R” (Ctrl+R) simultaneously to refresh the screen. Use this screen to perform all the available management functions.

## User Interface

The command keys are displayed on the bottom of screen, move the cursor to the correct position to change function setting. The command keys are described below:

**Tab** – move the cursor to the next item

**Back Space** – move the cursor to previous item

**Space** – toggle, select item

**Ctrl+D** – all feature settings are reset the default values.

**Ctrl+P** – display next page

**Ctrl+R** – screen refresh

**Ctrl+W** – apply and configuration settings. Use this command to let the settings take effect. This will also save the settings data to the EEPROM in the switch.

The three pages available for configuring the Switch are shown in the examples that follow. Read the next section for a description of the available software features.

```

D-Link DES-1048G Switch Configuration

Ports Configuration:

Port  Speed  Duplex  Flow Ctrl  Port  Speed  Duplex  Flow Ctrl
 1 < Auto> < - > < - >    13 < 100 > < Full> <Disable>
 2 < Auto> < - > < - >    14 < Auto> < - > < - >
 3 < Auto> < - > < - >    15 < Auto> < - > < - >
 4 < Auto> < - > < - >    16 < Auto> < - > < - >
 5 < Auto> < - > < - >    17 < Auto> < - > < - >
 6 < Auto> < - > < - >    18 < Auto> < - > < - >
 7 < 10 > < Full> <Disable> 19 < Auto> < - > < - >
 8 < Auto> < - > < - >    20 < Auto> < - > < - >
 9 < Auto> < - > < - >    21 < Auto> < - > < - >
10 < Auto> < - > < - >    22 < Auto> < - > < - >
11 < Auto> < - > < - >    23 < Auto> < - > < - >
12 < Auto> < - > < - >    24 < 100 > < Full> < Enable>

=====Page 1==
Tab=Next      Backspace=Previous  Spacebar=Toggle      Uer A1-U1.00
Ctrl+D=Reset To Default  Ctrl+P=Next Page    Ctrl+R=Refresh      Ctrl+W=Apply

```

Figure 5-1. Management Console Screen (page 1)

```

Console - Hypervisor
File Edit View Help

D-Link DES-1048G Switch Configuration

Ports Configuration:

Port  Speed    Duplex    Flow Ctrl    Port  Speed    Duplex    Flow Ctrl
25 < Auto> < - > < - >        37 < Auto> < - > < - >
26 < Auto> < - > < - >        38 < Auto> < - > < - >
27 < Auto> < - > < - >        39 < Auto> < - > < - >
28 < Auto> < - > < - >        40 < Auto> < - > < - >
29 < Auto> < - > < - >        41 < Auto> < - > < - >
30 < 10 > < Half> <Disable>    42 < Auto> < - > < - >
31 < Auto> < - > < - >        43 < Auto> < - > < - >
32 < Auto> < - > < - >        44 < Auto> < - > < - >
33 < Auto> < - > < - >        45 < Auto> < - > < - >
34 < Auto> < - > < - >        46 < Auto> < - > < - >
35 < Auto> < - > < - >        47 < Auto> < - > < - >
36 < Auto> < - > < - >        48 < Auto> < - > < - >

=====Page 2==
Tab=Next      Backspace=Previous      Spacebar=Toggle      Ver A1-V1.00
Ctrl+D=Reset To Default      Ctrl+P=Next Page      Ctrl+R=Refresh      Ctrl+W=Apply

```

Figure 5-2. Management Console Screen (page 2)

Page 3 of the Management Console Screen shown below can be will display the default setting (*Auto*) for the optional GBIC port modules. GBIC ports operate at 1000Mbps in full duplex only with flow control enabled. The presence of a functioning module will be indicated by the appearance of a description fiber optic cabling (1000BASE-SX, 1000BASE-LX, 1000BASE-LH) used for the GBIC port.

```

Console - Hypervisor
File Edit View Help

D-Link DES-1048G Switch Configuration

Ports Configuration:

GBIC Ports      Speed    Duplex    Flow Ctrl
1 ( 1000Base-SX ) < Auto> < - > < - >
2 ( No Module ) < - > < - > < - >

=====Page 3==
Tab=Next      Backspace=Previous      Spacebar=Toggle      Ver A1-V1.00
Ctrl+D=Reset To Default      Ctrl+P=Next Page      Ctrl+R=Refresh      Ctrl+W=Apply

```

Figure 5-3. Management Console Screen (page 3)



## Software Features

The Switch management software provides the ability to configure the port speed, duplex and flow control for each UTP port. The default setting is *Auto* for all ports. This setting enables Nway to auto-negotiate port speed with the device to which the port is connected. It also enables full duplex operation and flow control. The *Auto* setting can not be changed for the optional GBIC ports. GBIC ports operate at 1000Mbps in full duplex mode only with flow control always enabled.

### Port Speed

You can select the desired Speed and Duplex for each UTP port. The settings that can be chosen are *10*, *100* or *Auto*, where 10 and 100 are the port speed in Mbps.

### Duplex

The default setting is full duplex, however any UTP port may be set at half duplex by selecting *Half*. The GBIC ports operate in full duplex mode only.

### Flow Control

The default setting enables flow control however any UTP port can be set to *Disable* thus preventing flow control. Flow control is useful during periods of heavy network activity when the Switch's buffers can receive too much traffic and fill up faster than the Switch can forward the information. In such cases, the Switch will intervene and instruct the transmitting device to pause to allow the information in the port buffer to be sent.



# TECHNICAL SPECIFICATIONS

General											
Standards:	<p>IEEE 802.3 10BASE-T Ethernet</p> <p>IEEE 802.3u 100BASE-TX Fast Ethernet</p> <p>IEEE 802.3z 1000BASE-SX Gigabit Ethernet</p> <p>IEEE 802.3x Flow Control</p> <p>ANSI/IEEE Std 802.3 NWay auto-negotiation</p>										
Protocol:	CSMA/CD										
Data Transfer Rate:	<table border="0"> <tr> <td>Ethernet:</td> <td>Fast Ethernet:</td> </tr> <tr> <td>10 Mbps (half duplex)</td> <td>100Mbps (half duplex)</td> </tr> <tr> <td>20 Mbps (full duplex)</td> <td>200Mbps (full duplex)</td> </tr> <tr> <td colspan="2">Gigabit Ethernet:</td> </tr> <tr> <td colspan="2">2000 Mbps (full duplex only)</td> </tr> </table>	Ethernet:	Fast Ethernet:	10 Mbps (half duplex)	100Mbps (half duplex)	20 Mbps (full duplex)	200Mbps (full duplex)	Gigabit Ethernet:		2000 Mbps (full duplex only)	
Ethernet:	Fast Ethernet:										
10 Mbps (half duplex)	100Mbps (half duplex)										
20 Mbps (full duplex)	200Mbps (full duplex)										
Gigabit Ethernet:											
2000 Mbps (full duplex only)											
Topology:	Star										
Network Cables:	UTP Category 3,4,5 (100 m)										
10BaseT:	EIA/TIA- 568 100-ohm STP (100 m)										
100Base-TX:	UTP Cat. 5 (100 m)										
	EIA/TIA-568 100-ohm STP (100 m)										
1000BASE-SX:	50/125 $\mu$ m Multimode Fiber-optics (550 meters max.)										
	62.5/125 $\mu$ m Multimode Fiber-optics (275 meters max.)										
1000BASE-LX:	50/125 $\mu$ m Multimode Fiber-optics (550 meters max.)										
	62.5/125 $\mu$ m Multimode Fiber-optics (275 meters max.)										
	9/125 $\mu$ m Singlemode Fiber-optics (5,000 meters max.)										
Long Haul:	9/125 $\mu$ m Singlemode Fiber-optics (70,000 meters max.)										

<b>General</b>	
Number of Ports:	48 x 10/100 Mbps MDI-X ports (1 or 2) x 1000 Mbps GBIC ports (optional)
Media Interface Exchange:	MDI-II RJ-45

<b>Physical and Environmental</b>	
AC input	100 - 240 VAC, 50 - 60 Hz , 1.A Max
Power Consumption:	50 watts maximum
DC fans:	2 built-in 40 x 40 mm fans
Operating Temperature:	0 ° ~ 40 °C
Storage Temperature:	-40 ° ~ 70 °C
Humidity:	5% ~ 95% non-condensing
Dimensions:	44.3 cm x 37.1 cm x 4.4 cm
Weight:	5.3 Kg
EMI:	CE Class A, C-Tick Class A, FCC Class A
Safety:	UL/CUL, TUV/GS

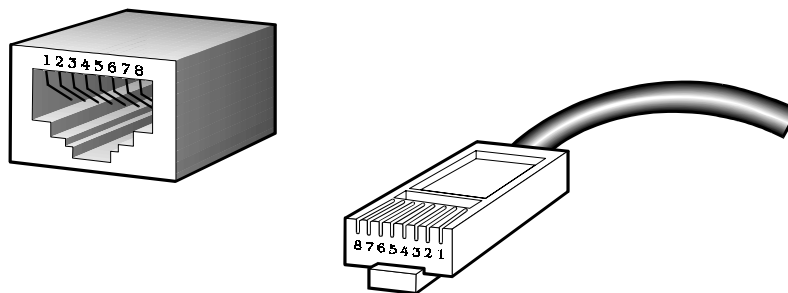
<b>Performance</b>	
Transmission Method:	Store-and-forward
RAM Buffer:	3 Mb bytes per device
MAC Address Table:	Minimum 8 Kb entries per device
Packet Filtering/Forwarding Rate:	14,880 pps per port (for 10Mbps) 148,810 pps per port (for 100Mbps) 1,488,100 pps per port (for 1000Mbps)

---

## ***CABLES AND CONNECTORS***

When connecting the Switch to another switch, a bridge or hub, a crossover cable is necessary. Please review these products for matching cable pin assignment.

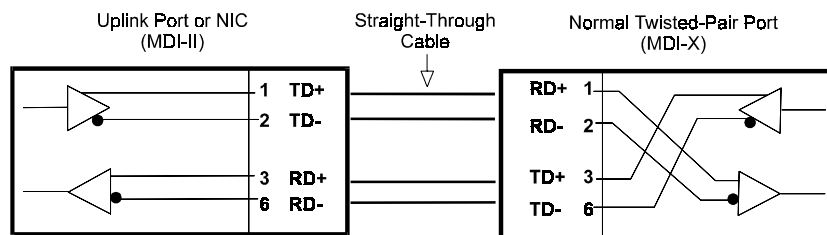
The following diagrams and tables show the standard RJ-45 receptacle/connector and their pin assignments.



**The standard RJ-45 port and connector**

RJ-45 Pin Assignments		
Contact	MDI-X Port	MDI-II Port
1	RD+ (receive)	TD+ (transmit)
2	RD- (receive)	TD- (transmit)
3	TD+ (transmit)	RD+ (receive)
4	Not used	Not used
5	Not used	Not used
6	TD- (transmit)	RD- (receive)
7	Not used	Not used
8	Not used	Not used

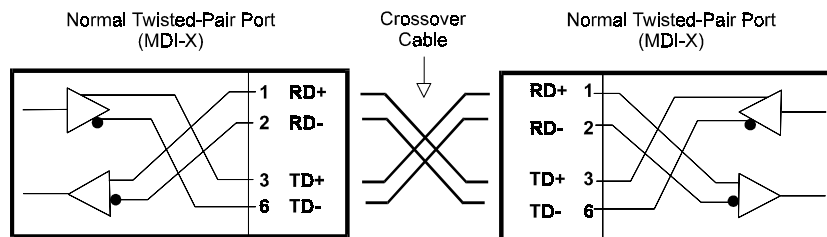
### The standard RJ-45 pin assignments



### Straight cable for use with MDI-II to MDI-X connections

With a crossover cable, two pairs of wires are switched at one connector end. Carry out the following steps to create a customized, crossover twisted-pair cable:

1. Leave one end of the cable as is, with the RJ-45 connector intact. The wiring at just one end of the cable needs to be modified.
2. At the other end of the cable, connect wires 1 and 2 to contacts 3 and 6, respectively. Likewise, connect wires 3 and 6 to contacts 1 and 2. Refer to the following diagram:



### Crossover cable for use with MDI-X to MDI-X and/or MDI-II to MDI-II connections



## **D-Link** Offices

---

- AUSTRALIA**    **D-LINK AUSTRALASIA**  
Unit 16, 390 Eastern Valley Way, Roseville, NSW 2069, Australia  
TEL: 61-2-9417-7100    FAX: 61-2-9417-1077  
TOLL FREE: 1800-177-100 (Australia),    0800-900900 (New Zealand)  
URL: [www.dlink.com.au](http://www.dlink.com.au)  
E-MAIL: [support@dlink.com.au](mailto:support@dlink.com.au),    [info@dlink.com.au](mailto:info@dlink.com.au)
- CANADA**    **D-LINK CANADA**  
2180 Winston Park Drive, Oakville, Ontario L6H 5W1 Canada  
TEL: 1-905-829-5033    FAX: 1-905-829-5223    BBS: 1-965-279-8732  
FREE CALL: 1-800-354-6522  
URL: [www.dlink.ca](http://www.dlink.ca)  
FTP: [ftp.dlinknet.com](ftp://ftp.dlinknet.com)  
E-MAIL: [techsup@dlink.ca](mailto:techsup@dlink.ca)
- CHILE**    **D-LINK SOUTH AMERICA**  
Isidora Goyenechea #2934 of.702, Las Condes, Santiago, Chile  
TEL: 56-2-232-3185    FAX: 56-2-2320923  
URL: [www.dlink.cl](http://www.dlink.cl)  
E-MAIL: [ccasassu@dlink.cl](mailto:ccasassu@dlink.cl), [tsilva@dlink.cl](mailto:tsilva@dlink.cl)
- DENMARK**    **D-LINK DENMARK**  
Naverland 2, DK-2600 Glostrup, Copenhagen, Denmark  
TEL: 45-43-969040    FAX: 45-43-424347  
URL: [www.dlink.dk](http://www.dlink.dk)  
E-MAIL: [info@dlink.dk](mailto:info@dlink.dk)
- EGYPT**    **D-LINK MIDDLE EAST**  
7 Assem Ebn Sabet Street, Heliopolis Cairo, Egypt  
TEL: 202-2456176    FAX: 202-2456192  
URL: [www.dlink-me.com](http://www.dlink-me.com)  
E-MAIL: [support@dlink-me.com](mailto:support@dlink-me.com),    [fateen@dlink-me.com](mailto:fateen@dlink-me.com)
- FRANCE**    **D-LINK FRANCE**  
Le Florilege #2, Allee de la Fresnerie  
78330 Fontenay Le Fleury France  
TEL: 33-1-30238688    FAX: 33-1-3023-8689  
URL: [www.dlink-france.fr](http://www.dlink-france.fr)  
E-MAIL: [info@dlink-france.fr](mailto:info@dlink-france.fr)
- GERMANY**    **D-LINK CENTRAL EUROPE/D-LINK DEUSTSCHLAND GMBH**  
Schwalbacher Strasse 74, 65760 Eschborn Germany  
TEL: 49-(0) 6196-7799-0    FAX: 49-(0) 6196-7799-300  
URL: [www.dlink.de](http://www.dlink.de)  
E-MAIL: [mbischoff@dlink.de](mailto:mbischoff@dlink.de), [mboerner@dlink.de](mailto:mboerner@dlink.de)
- INDIA**    **D-LINK INDIA**  
Plot No.5, Kurla-Bandra Complex Road,  
Off Cst Road, Santacruz (E), Bombay - 400 098 India  
TEL: 91-22-652-6696    FAX: 91-22-652-8914  
URL: [www.dlink-india.com](http://www.dlink-india.com)  
E-MAIL: [service@dlink.india.com](mailto:service@dlink.india.com)
- ITALY**    **D-LINK ITALY**  
Via Nino Bonnet No. 6/b, 20154 Milano, Italy  
TEL: 39-02-2900-0676  
FAX: 39-02-2900-1723  
E-MAIL: [info@dlink.it](mailto:info@dlink.it)  
URL: [www.dlink.it](http://www.dlink.it)

**JAPAN**            **D-LINK JAPAN**  
10F, 8-8-15 Nishi-Gotanda, Shinagawa-ku, Tokyo 141 Japan  
TEL: 81-3-5434-9678  
FAX: 81-3-5434-9868  
URL: www.d-link.co.jp  
E-MAIL: kida@d-link.co.jp

**RUSSIA**            **D-LINK RUSSIA**  
Michurinski Prospekt 49, 117607 Moscow, Russia  
TEL: 7-095-737-3389, 7-095-737-3492    FAX: 7-095-737-3390  
E-MAIL: vl@dlink.ru

**SINGAPORE**       **D-LINK INTERNATIONAL**  
1 International Business Park, #03-12 The Synergy, Singapore 609917  
TEL: 65-774-6233    FAX: 65-774-6322  
URL: www.dlink-intl.com  
E-MAIL: info@dlink.com.sg

**S. AFRICA**        **D-LINK SOUTH AFRICA**  
Unit 2, Parkside 86 Oak Avenue  
Highveld Technopark Centurion, Gauteng, Republic of South Africa  
TEL: 27(0)126652165    FAX: 27(0)126652186  
CELL NO: 0826010806 (Bertus Moller)  
CELL NO: 0826060013 (Attie Pienaar)  
E-MAIL: bertus@d-link.co.za,    attie@d-link.co.za

**SWEDEN**           **D-LINK SWEDEN**  
P.O. Box 15036, S-167 15 Bromma Sweden  
TEL: 46-(0)8564-61900  
FAX: 46-(0)8564-61901  
E-MAIL: info@dlink.se  
URL: www.dlink.se

**TAIWAN**           **D-LINK TAIWAN**  
2F, No. 119 Pao-Chung Road, Hsin-Tien, Taipei, Taiwan, R.O.C.  
TEL: 886-2-2910-2626  
FAX: 886-2-2910-1515  
URL: www.dlinktw.com.tw  
E-MAIL: dssqa@tsc.dlinktw.com.tw

**U.K.**                **D-LINK EUROPE**  
D-Link (Europe) Ltd. 4<sup>th</sup> Floor Merit House,  
Edgware Road, Colindale, London NW95AB U.K.  
TEL: 44-20-8731-5555    FAX: 44-20-8731-5511  
URL: www.dlink.co.uk  
E-MAIL: info@dlink.co.uk

**U.S.A**              **D-LINK U.S.A.**  
53 Discovery Drive, Irvine, CA 92618 USA  
TEL: 1-949-788-0805    FAX: 1-949-753-7033  
INFO LINE: 1-800-326-1688  
BBS: 1-949-455-1779,    1-949-455-9616  
URL: www.dlink.com  
E-MAIL: tech@dlink.com,    support@dlink.com



## 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®**