# D-Link **DES-1024D**

## 24-Port 10/100 Ethernet Switch

## Manual

*Rev. 080702*

**D-Link**

**Building Networks for People**

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# ABOUT THIS GUIDE

Congratulations on your purchase of the DES-1024D 24-port 10/100Mbps Fast Ethernet Switch. This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities into one highly flexible solution.

## Purpose

This guide discusses how to install your DES-1024D.

## Terms/Usage

In this guide, the term "**Switch**" (first letter upper case) refers to your 24-port 10/100Mbps Fast Ethernet Switch, and "**switch**" (first letter lower case) refers to other Ethernet switches.

## Overview of this Manual

*Introduction.* Describes the Switch and its features.

*Unpacking and Installation.* Helps you get started with the basic installation of the Switch.

*Identifying External Components.* Describes the front panel, rear panel and LED indicators of the Switch.

*Technical Specifications.* Lists the technical (general, physical and environmental, and performance) specifications of the Switch.

# INTRODUCTION

This chapter describes the features of the DES-1024D and some background information about Ethernet/Fast Ethernet switching technology.

## Fast Ethernet Technology

Ethernet, along with its speedier counterpart Fast Ethernet, is the most popular networking standard in use today. 100BaseT Fast Ethernet is an extension of the 10BaseT Ethernet standard, designed to raise the data transmission capacity of 10BaseT from 10Mbits/sec to 100Mbits/sec. An important strategy incorporated by 100BaseT is its use of the Carrier Sense Multiple Access with Collision Detection (CSMA/CD) protocol - which is the same protocol that 10BaseT uses - because of its ability to work with several different types of cable, including basic twisted-pair wiring. Both of these features play an important role in network considerations, and they make 100BaseT an attractive migration path for those networks based on 10BaseT. Since the 100Mbps Fast Ethernet is compatible with all other 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training.

## Switching Technology

Switching is a cost-effective way of increasing the total network capacity available to users on a LAN. If an Ethernet network begins to display symptoms of congestion, low throughput, slow response times, and high rates of collision, installing a switch to a network can preserve much or all of the existing network's cabling and workstation interface card infrastructure, while still greatly enhancing the throughput for users. A switch is a viable solution even if demanding applications, such as multimedia production and video conferencing, are on the horizon. The most promising techniques, as well as the best return on investment, could well consist of installing the right mixture of Ethernet switches.

A switch increases capacity and decreases network loading by dividing a local area network into different LAN segments. Dividing a LAN into multiple segments is one of the most common ways of increasing available bandwidth. If segmented correctly, most network traffic will remain within a single segment, enjoying the full-line speed bandwidth of that segment.

Switches provide full-line speed and dedicated bandwidth for all connections. This is in contrast to hubs, which use the traditional shared networking topology, where the connected nodes contend for the same network bandwidth. When two switching nodes are communicating, they are connected with a dedicated channel between them, so there is no contention for network bandwidth with other nodes. As a result, the switch reduces considerably, the likelihood of traffic congestion.

For Ethernet networks, a switch is an effective way of eliminating the problem of chaining hubs beyond the "two-repeater limit." A switch can be used to split parts of the network into different collision domains, making it possible to expand your Ethernet network beyond the 205-meter network diameter limit for 100BASE-TX networks. Switches supporting both traditional 10Mbps Ethernet, 100Mbps Fast Ethernet, 1000Mbps Gigabit Ethernet are also ideal for bridging between existing 10Mbps networks, 100Mbps networks, and new 1000Mbps networks.

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

## Features

The DES-1024D is a high-performance switch designed specifically for environments where traffic on the network and the number of users increase continuously.

- **24-port 10/100BASE Ethernet Switch with RJ-45 connectors**
- **Supports Auto-negotiation of speed and duplex modes for each port**
- **Supports Auto-MDI/MDI-X on each port, eliminating the need for cross over cables or uplink ports**
- **Wire-speed reception and transmission**
- **Store-and-Forward switching method**
- **Integrated address Look-Up Engine, supports 8K MAC addresses**
- **Supports 2.5Mbps RAM for data buffering**
- **Front-panel diagnostic LEDs**
- **Broadcast storm protection**
- **IEEE 802.3x flow control for full-duplex**
- **Back pressure flow control for half-duplex**

## Unpacking

Open the shipping cartons of the DES-1024D and carefully unpack its contents. The carton should contain the following items:

- **One DES-1024D 24-port 10/100Mbps Fast Ethernet Switch**
- **One AC power cord**
- **Four rubber feet to be used for shock cushioning**
- **Screws and two mounting brackets**
- **This manual**

If any item is missing or damaged, please contact your local reseller for replacement.
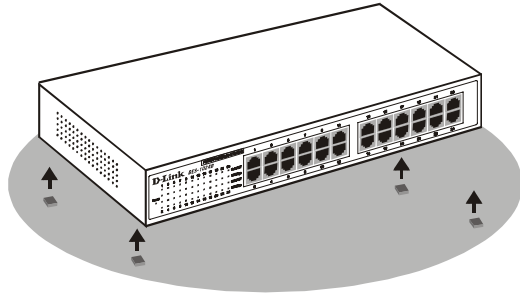
## Setup

The setup of the DES-1024D can be performed by using the following steps:

1. **The surface must support at least 11 lbs (5 kg).**
2. **The power outlet should be within 6 feet (1.42 meters) of the device.**
3. **Visually inspect the power cord and see that it is secured fully to the AC power outlet.**
4. **Do not cover the ventilation holes on the sides of the Switch, and make sure there is adequate ventilation around it.**
5. **Do not place heavy objects on the Switch.**

## Desktop Installation

When installing the DES-1024D on a desktop or shelf, the rubber feet

included with the device should be attached first, to minimize scratching or scarring of the surface on which the Switch is placed. Attach these cushioning feet on the bottom at each corner of the device. Allow enough ventilation space between the device and the objects around it.
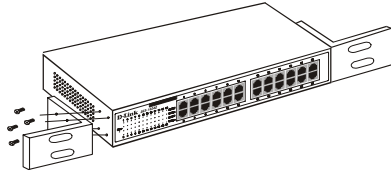


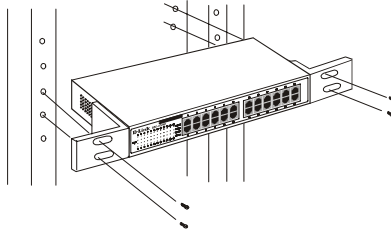**Fast Ethernet Switch installed on a Desktop or Shelf**

## Rack Mounting

The DES-1024D can be mounted in an EIA standard-size 19-inch rack, in a

wiring closet with other equipment. Attach the mounting brackets on each side of the Switch's front panel (as shown in the illustration below), and secure them with the screws provided.



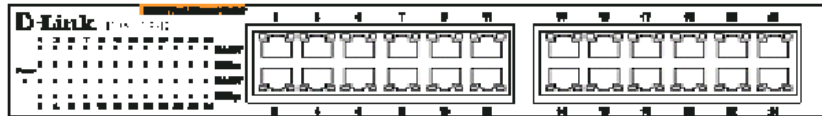**Attaching the mounting brackets to the Switch**



**Installing the Switch in an equipment rack**

# IDENTIFYING EXTERNAL COMPONENTS
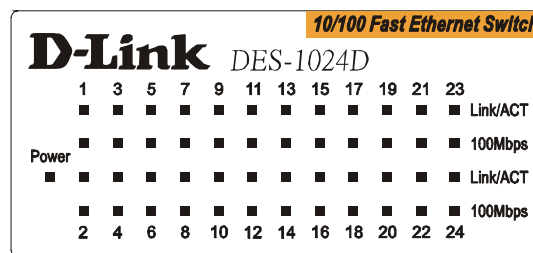
## Front Panel

The figure below shows the front panels of the switch.



**24-port 10/100Mbps Fast Ethernet Switch**

## LED Indicator Panel

Refer to the next chapter for detailed information about each of the switch's LED indicators.



■ **Power   (PWR)**

This green LED indicator illuminates when the switch is receiving power; otherwise, it is off.

■ **Link / Activity**

This green LED indicator illuminates when the port is connected to a Fast Ethernet or Ethernet station; the indicator blinks when transmitting or receiving data.

■ **100Mbps (green)**

This green LED indicator illuminates when the port is connected to a 100Mbps Fast Ethernet station. The LED does not illuminate when the port is connected to 10Mbps Ethernet station.

### Twisted-Pair Ports

These ports support automatic MDI/MDIX crossover detection function providing true 'plug and play' connectivity, which eliminates the need for crossover cables or uplink ports. Any port can be simply plugged to a server, workstation, or hub using the usual straight-through, twisted-pair cable.

## Rear Panel

AC Power Connector

# TECHNICAL SPECIFICATIONS

| General | |
|---------|---|
| Standards | IEEE 802.3 10BASE-T Ethernet<br>IEEE 802.3u 100BASE-TX Fast Ethernet |
| Protocol | CSMA/CD |
| Data Transfer Rate | Ethernet: 10Mbps (half duplex), 20Mbps (full-duplex)<br>Fast Ethernet: 100Mbps (half duplex), 200Mbps (full- duplex) |
| Topology | Star |
| Network Cables | 10BASET: 2-pair UTP Cat. 3,4,5, EIA/TIA- 568 100-ohm STP<br>100BASE-TX: 2-pair UTP Cat. 5, EIA/TIA-568 100-ohm STP |
| Number of Ports | 24 x 10/100Mbps Auto-MDI/MDIX ports |
| **Physical and Environmental** | |
| AC inputs | 100 to 240 VAC, 50 or 60 Hz internal universal power supply |
| Power Consumption | 8.25 watts. (max.) |
| Temperature | Operating: 0° ~ 40° C (32º to 104º F)<br>Storage: -10° ~ 70° C (14º to 158º F) |
| Humidity | Operating: 10% ~ 90% RH, Non-condensing<br>Storage: 5% ~ 90% RH, Non-condensing |
| Dimensions | Width: 11.02 in. (280mm)<br>Depth: 7.09 in. (180mm)<br>Height: 1.73 in. (44mm) |
| EMI: | FCC Class A, CE Mark Class A, VCCI Class A |
| Safety | CUL |

| Performance | |
|---|---|
| Transmits Method: | Store-and-forward |
| RAM Buffer: | 2.5MBits per device |
| Filtering Address Table: | 8K entries per device |
| Packet Filtering/ Forwarding Rate: | 10Mbps Ethernet: 14,880/pps<br>100Mbps Fast Ethernet: 148,800/pps |
| MAC Address Learning: | Automatic update |

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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.

5-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) Five (5) Years
- 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.

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- The customer must submit 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 shipping charges to D-Link. No Charge on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products should be fully insured by the customer and shipped to **D-Link Systems, Inc., 53 Discovery Drive, Irvine, CA 92618**. 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 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.

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