D-Link DES-1024D
24-Port 10/100 Ethernet Switch

Manual

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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 AND SETUP

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 (1.82 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 |

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## TECHNICAL SPECIFICATIONS

### General

| Standards                  | IEEE 802.3 10BASE-T Ethernet  
|                           | IEEE 802.3u 100BASE-TX Fast Ethernet |
| Protocol                  | CSMA/CD |
| Data Transfer Rate        | Ethernet: 10Mbps (half duplex), 20Mbps (full-duplex)  
|                           | 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  
|                           | 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 (32° to 104° F)  
|                           | Storage: -10° ~ 70° C (14° to 158° F) |
| Humidity                   | Operating: 10% ~ 90% RH, Non-condensing  
|                           | Storage: 5% ~ 90% RH, Non-condensing |
| Dimensions                 | Width: 11.02 in. (280mm)  
|                           | Depth: 7.09 in. (180mm)  
|                           | Height: 1.73 in. (44mm) |
| EMI:                       | FCC Class A, CE Mark Class A, VCCI Class A |
| Safety                     | CUL |
## Technical Specifications

<table>
<thead>
<tr>
<th>Performance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmits Method:</td>
<td>Store-and-forward</td>
</tr>
<tr>
<td>RAM Buffer:</td>
<td>2.5MBits per device</td>
</tr>
<tr>
<td>Filtering Address Table:</td>
<td>8K entries per device</td>
</tr>
</tbody>
</table>
| Packet Filtering/Forwarding Rate: | 10Mbps Ethernet: 14,880/pps  
|                              | 100Mbps Fast Ethernet: 148,800/pps |
| MAC Address Learning:        | Automatic update                 |
WARRANTY AND REGISTRATION

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.

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
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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 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: Any claim under this limited warranty must be submitted in writing before the end of the Warranty Period to an Authorized D-Link Service Office.

- 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.

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
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**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.

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