



DES-1010G  
8-Port 10/100Mbps +  
2-Port 10/100/1000Mbps  
Gigabit Ethernet Switch

User's Guide



RECYCLABLE

Rev.1.00

1907GSW08026000

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## ***ABOUT THIS GUIDE***

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Congratulations on your purchase of the DES-1010G 8-port 10/100Mbps plus 2-port 10/100/1000Mbps Gigabit Ethernet Switch.

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### **Purpose**

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This manual discusses how to install your DES-1010G.

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### **Terms/Usage**

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In this manual, the term “**Switch**” (first letter upper case) refers to your DES-1010G 8-port 10/100Mbps plus 2-port 10/100/1000Mbps Gigabit Ethernet Switch, and “**switch**” (first letter lower case) refers to other Ethernet switches.

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### **Overview of this Manual**

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***Introduction.*** Describes the Switch and its features.

***Unpacking and Setup.*** 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.

***Connecting the Switch.*** Tells you how you can connect the Switch to your Ethernet network.

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

## ***INTRODUCTION***

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This chapter describes the features of the DES-1010G and some background information about Gigabit Ethernet/Fast Ethernet switching technology.

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### **Gigabit Ethernet Technology**

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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 buses 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 increased 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.

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### **Fast Ethernet Technology**

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Ethernet, along with its speedier counterpart Fast Ethernet, is the most popular networking standard in use today. 100BaseT Fast Ethernet is an

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extension of the 10BaseT Ethernet standard, designed to raise the data transmission capacity of 10BaseT from 10Mbps/sec to 100Mbps/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.

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## Switching Technology

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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 LAN (local area network). A switch increases capacity and decreases network loading by making it possible for a LAN 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.

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## Features

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The DES-1010G 8-port 10/100Mbps plus 2-port 10/100/1000Mbps Gigabit Ethernet Switch was designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

Switch features include:

- Two 10/100/1000Mbps Gigabit Ethernet ports (ports 9 ~ 10).
- Eight 10/100Mbps Fast Ethernet ports (ports 1 ~ 8).
- Store-and-forward switching scheme capability to support rate adaptation and protocol conversion.
- Full-duplex to allow two communicating stations to transmit and receive at the same time.
- Wire-speed data forwarding rate for each port.
- Wire-speed data filtering rate for each port.
- 6K active MAC address entry table per device with automatic learning and aging.
- 256Kbytes packet buffer per device.
- Supports broadcast storm rate filtering.
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## ***UNPACKING AND SETUP***

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### **Unpacking**

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

- One DES-1010G 8-port 10/100Mbps plus 2-port 10/100/1000Mbps Gigabit Ethernet Switch
- Four rubber feet with adhesive backing
- Screws and two mounting brackets
- One AC power cord
- This manual
- Quick Installation Guide

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

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### **Setup**

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The setup of the Switch can be performed by using the following steps:

- The surface must support at least 11 lbs (5 kg).
- The power outlet should be within 6 feet (1.82 meters) of the device.
- Visually inspect the power cord and see that it is secured fully to the AC power outlet on the Switch.
- 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.
- Do not place heavy objects on the Switch.

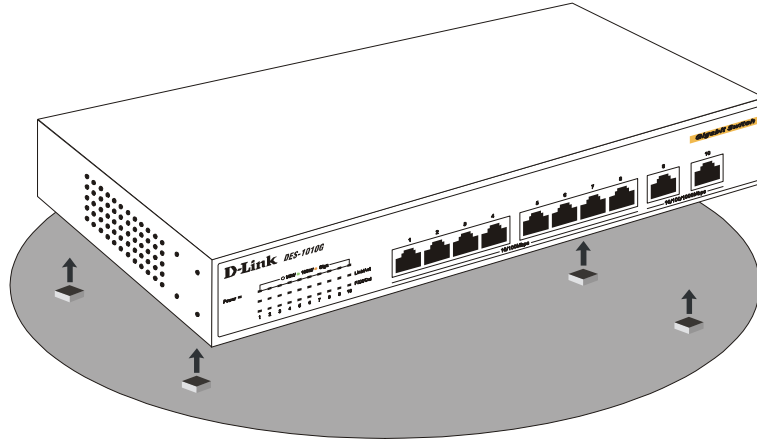


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## Desktop Installation

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When installing the Switch 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.



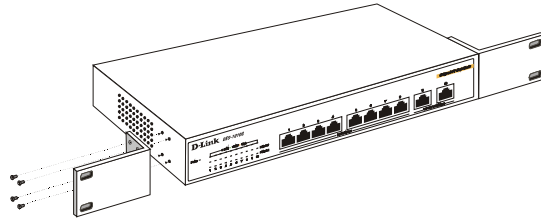
**DES-1010G Gigabit Ethernet Switch installed on a Desktop or Shelf**

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## Rack Installation (optional)

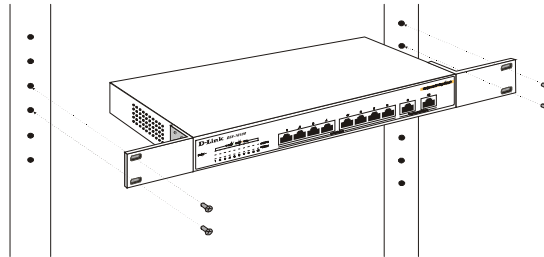
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The DES-1010G Gigabit Ethernet Switch can be mounted in an EIA standard-size 19-inch rack, in a wiring closet with other equipment. Attach the mounting brackets on each side of the Switch's front panel (as shown in the illustration below), and secure them with the screws provided.



**Attaching the mounting brackets to the Switch**

Then, use the screws provided with the equipment rack to mount the Switch in the rack.



**Installing the Switch in an equipment rack**

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## **Connecting Network Cable**

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The DES-1010G supports two 10/100/1000Mbps Gigabit Ethernet ports and eight 10/100Mbps Fast Ethernet ports. Port 1 to port 8 supports 10Mbps Ethernet or 100Mbps Fast Ethernet. Port 9 to port 10 are Gigabit Ethernet ports; it supports 10Mbps, 100Mbps and 1000Mbps. And these ports run both half-duplex and full-duplex while it's running in 10Mbps, 100Mbps or 1000Mbps.

All ports on the DES-1010G are Auto-MDI/MDIX type ports. These ports can auto transform to MDI-II or MDI-X type, so you can just make an easy connection without worrying if you are using a standard or crossover cable.

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## **Power On**

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The DES-1010G Gigabit Ethernet Switch can be used with AC power sources 100 - 240 VAC, 50 - 60 Hz. The Switch's power supply will adjust to the local power source automatically and may be turned on without having any or all LAN segment cables connected.

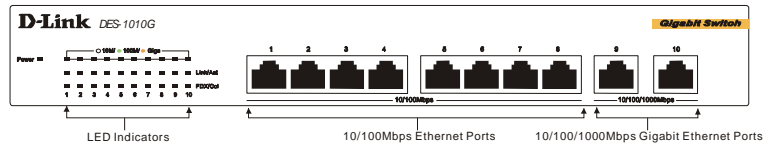
## IDENTIFYING EXTERNAL COMPONENTS

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### Front Panel

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The front panel of the DES-1010G Switch consists of (8) 10/100Mbps Ethernet ports, (2) 10/100/1000Mbps Gigabit Ethernet ports, and LED indicators.



**Front panel view of the 10-port 10/100Mbps Gigabit Ethernet Switch**

- Two 10/100/1000Mbps Gigabit Ethernet ports (port 9 ~10).
- Eight 10/100Mbps Fast Ethernet ports (port 1 ~ 8).
- Comprehensive LED indicators that display the conditions of the Switch and status of the network. A description of these LED indicators follows (see *LED Indicators*).

### Rear Panel

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The rear panel of the Switch consists of an AC power connector. The following shows the rear panel of the Switch



**Rear panel view of the DES-1010G Gigabit Ethernet Switch**

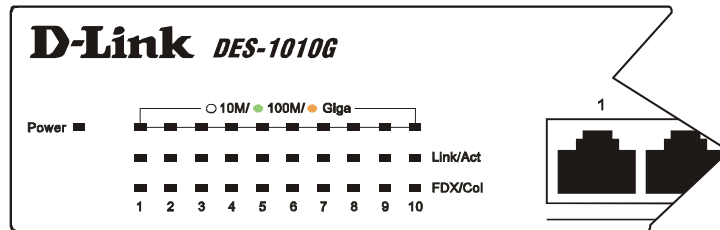
**AC Power Connector-** This is a three-pronged connector that supports the power cord. Plug in the female connector of the provided power cord into this connector, and the male into a power outlet. Supported input voltages range from 100 - 240 VAC at 50/60 Hz.

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## LED Indicators

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The LED indicators of the Switch include Power, SPEED, LINK/ACT and FDX/COL. The following shows the LED indicators for the Switch along with an explanation of each indicator.



**The DES-1010G Gigabit Ethernet Switch LED indicators**

### ■ POWER (PWR)

After turning on the power, the Power indicator on the front panel should light to indicate the Switch is receiving power.

### ■ SPEED

The indicator lights amber when the port is connected to 1000Mbps Gigabit Ethernet station, and the indicator lights green when the port is connected to 100Mbps Fast Ethernet station. Otherwise, this indicator remains off when the port is connected to a 10Mbps Ethernet station.

### ■ LINK/ACT

This indicator lights green when a port is connected to a station successfully and has a good link. A blinking green indicator means that a port is transmitting or receiving data on the network.

### ■ FDX/COL

This LED indicator lights green when a respective port is in full duplex (FDX) mode. Otherwise, it is blinking green when collisions are occurring on the respective port.

## ***TECHNICAL SPECIFICATIONS***

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<b>General</b>
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Standards	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet ANSI/IEEE 802.3 Auto-negotiation IEEE 802.3x Flow Control
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps (half duplex), 20Mbps (full-duplex) Fast Ethernet: 100Mbps (half duplex), 200Mbps (full- duplex) Gigabit Ethernet: 1000Mbps (half duplex), 2000Mbps (full duplex)
Topology	Star
Network Cables	Ethernet: 2-pair UTP Cat. 3,4,5, EIA/TIA- 568 STP Fast Ethernet: 2-pair UTP Cat. 5, EIA/TIA-568 STP Gigabit Ethernet: 4-pair UTP Cat. 5, EIA/TIA-568 STP
Number of Ports	2 x 10/100/1000Mbps Gigabit Ethernet Auto-MDI/MDI-X ports 8 x 10/100Mbps Ethernet Auto-MDI/MDI-X ports
<b>Physical and Environmental</b>	
AC inputs	100 to 240 VAC, 50/60 Hz
Power Consumption	5.5 watts. (max.)
Temperature	Operating: 0° ~ 55°C (32° to 131° 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 (UL 60950), LVD (EC 60950)

<b>Performance</b>
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Transmission Method:	Store-and-forward
RAM Buffer:	256Kbytes per device
Filtering Address Table:	4K MAC address per device
Packet Filtering/ Forwarding Rate:	Ethernet: 14,880/pps Fast Ethernet: 148,800/pps Gigabit Ethernet: 148,800/pps
MAC Address Learning:	Self-learning, Auto-aging