



DES-1008F  
7-Port Copper + 1-Port Fiber  
10/100Mbps Switch

User's Guide

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## ***ABOUT THIS GUIDE***

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Congratulations on your purchase of the 8-Port 10/100Mbps NWay Ethernet Switch. This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a highly flexible desktop package.

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### **Purpose**

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This manual discusses how to install your 8-Port 10/100Mbps NWay Ethernet Switch.

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### **Terms/Usage**

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In this guide, the term “**Switch**” (first letter upper case) refers to your 8-Port 10/100Mbps NWay Ethernet Switch, and “**switch**” (first letter lower case) refers to other Ethernet switches.

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### **Overview of this User’s Guide**

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*Introduction.* Describes the Switch and its features a

*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 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 Switch and some background information about Ethernet/Fast Ethernet switching technology.

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### **Fast Ethernet Technology**

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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 have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base, virtually guarantee cost effective and high performance Fast Ethernet solutions in the years to come.

100Mbps Fast Ethernet is a new 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 CSMA/CD Ethernet protocol. 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 approach to pushing beyond the limits of Ethernet technology is the development of switching technology. A switch bridge 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

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decreases network loading by dividing a local area network into different *segments*, which don't compete with each other for network transmission capacity.

The switch acts as a high-speed selective bridge between the individual segments. The switch, without interfering with any other segments, automatically forwards traffic that needs to go from one segment to another. By doing this the total network capacity is multiplied, while still maintaining the same network cabling and adapter cards.

For Fast 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, 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 the existing 10Mbps networks and the 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, the setup and maintenance required make routers relatively impractical. Today switches are an ideal solution to most kinds of local area network congestion problems.

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## Features

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The Switch was designed for easy installation and high performance in an environment where traffic on the network and the number of user increase continuously.

The Switch with its small, compact size was specifically designed for small to middle workgroups. This Switch can be installed where space is limited; moreover, they provide immediate access to a rapidly growing network through a wide range of user-reliable functions.

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The Switch is ideal for deployment with multiple high-speed servers for shared bandwidth 10Mbps or 100Mbps workgroups. With the highest bandwidth 200Mbps (100Mbps full-duplex mode), any port can provide workstations with a congestion-free data pipe for simultaneous access to the server.

The Switch is expandable by cascading two or more switches together. As all ports support 200Mbps, the Switch can be cascaded from any port and to any number of switches.

The Switch is a perfect choice for site planning to upgrade to Fast Ethernet in the future. Ethernet workgroups can connect to the Switch now, and change adapters and hubs anytime later without needing to change the Switches or reconfigure the network.

The Switch combine dynamic memory allocation with store-and-forward switching to ensure that the buffer is effectively allocated for each port, while controlling the data flow between the transmit and receive nodes to guarantee against all possible packet loss.

The Switch is a 10/100 Fast Ethernet Switch that offers solutions in accelerating small Ethernet workgroup bandwidth. Other key features are:

- ◆ Supports one 100BASE-FX multimode fiber port for long distance connection, up to 2km in full-duplex mode.
- ◆ Supports seven 10/100Mbps NWay Ethernet RJ-45 MDI-X ports.
- ◆ Store and forward switching scheme capability. As the result of complete frame checking and error frame filtering, this scheme prevents error packages from transmitting among segments.
- ◆ NWay Auto-negotiation for RJ-45 ports (port-1 ~ port-7). This allows for auto-sensing of speed (10/100Mbps) thereby providing you with automatic and flexible solutions in your network connections.
- ◆ Flow control for any port. The Switch provides back-pressure flow control method for half duplex operation and IEEE 802.3x pause frame-based flow control method for full duplex operation.
- ◆ Data forwarding rate per port is at wire-speed for 100Mbps and 10Mbps speed.
- ◆ Data filtering rate eliminates all error packets, runts, etc., per port at

wire-speed for 100Mbps and 10Mbps speed.

- ◆ 1K MAC address entries table per device for the Switch.
- ◆ 64 KB RAM buffer per device for the Switch.

## *UNPACKING AND SETUP*

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This chapter provides unpacking and setup information for the Switches.

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### Unpacking

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

One 8-Port 10/100Mbps NWay Ethernet Switch

One external power adapter

This User's Guide

If any item is found 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 using the following steps:

- ◆ The surface must support at least 1 Kg for the Switch.
- ◆ The power outlet should be within 1.77 meters of the Switch.
- ◆ Visually inspect the DC power jack and make sure that it is fully secured to the power adapter.
- ◆ Make sure that there is proper heat dissipation from and adequate ventilation around the Switch. Do not place heavy objects on the Switch.



## ***IDENTIFYING EXTERNAL COMPONENTS***

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This section identifies all the major external components of the hub. Both the front and rear panels are shown followed by a description of each panel feature. The indicator panel is described in detail in the next chapter.

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### **Front Panel**

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The figure below shows the front panels of the switch.



#### **LED Indicator Panel**

##### **Power Indicator (Power)**

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

##### **Full-Duplex/Collision (FDX/Col)**

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

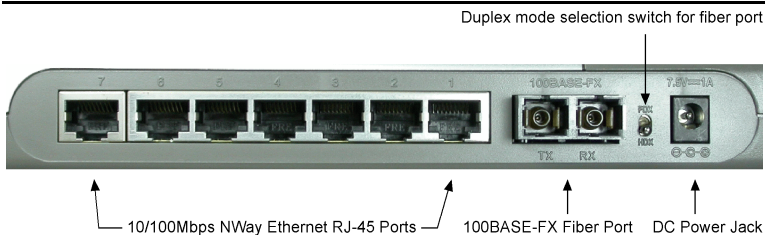
##### **Link/Activity (100M LINK/ACT(*green*), 10M LINK/ACT(*amber*))**

This LED indicator lights green when the port is connected to a 100Mbps Fast Ethernet station, if the indicator blinking green will be transmission or received data on the 100Mbps network. Otherwise, if the indicator lights amber when the port is connected to a 10Mbps Ethernet station, if the indicator blinking amber will be transmission or received data on the 10Mbps network.

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## Rear Panel

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**DC Power Jack:** Power is supplied through an external AC power adapter. Since the switch does not include a power switch, plugging its power adapter into a power outlet will immediately power it on.

**Auto-MDI-X Function ports:** Use these jacks (port-1 ~ port-7) to connect stations to the hub. An Auto-MDI-X function will automatically detect if a crossover is required and make the swap of Tx pair and Rx pair internally. With this function, straight-through cable can be used for any connection. MDI to MDI-X connection rule is not necessary anymore. In the switches, all TP ports are equipped with this function. You can use just straight-through type of cables for all your connections.

**100BASE-FX Fiber Port:** The Fiber port supports 100BASE-FX 62.5/125 $\mu$ m multimode fiber. The TX port has to link to others end RX port, and the RX port has to link to others end TX port.

**Duplex Mode Switch:** The switch is to select the operation mode either to run in full or half duplex mode for 100BASE-FX. When turning the switch to FDX, the fiber port will run at full duplex or turn to HDX, the fiber will run at half duplex.

## ***TECHNICAL SPECIFICATIONS***

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<b>Gener 1</b>	
Standards	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX 100BASE-FX Fast Ethernet ANSI/IEEE Std. 802.3 NWay Auto-negotiation
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	10BASE-T: 2-pair UTP Cat. 3,4,5 (100 m), EIA/TIA- 568 100-ohm STP (100 m) 100BASE-TX: 2-pair UTP Cat. 5 (100 m), EIA/TIA-568 100-ohm STP (100 m) 100BASE-FX: 62.5/125 $\mu$ m multimode fiber
Number of Ports	7 x 10/100Mbps NWay MDI-X RJ-45 Ports 1 x 100BASE-FX Multimode Fiber Port

## Physical and Environmental

DC inputs	7.5VDC/1A
Power Consumption	6.3 watts max.
Temperature	Operating: 0° ~ 40° C, Storage: -20° ~ 75° C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	192.5 x 119 x 32 mm (W x D x H)
EMI:	CE Mark B

## Performance

Transmission Method:	Store-and-forward
RAM Buffer:	64 KBytes per device
Filtering Address Table:	1K entries per device
Packet Filtering/Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps
MAC Address Learning:	Automatic update

## **CE Mark Warning**

This is a Class B 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 B. Im Wohnbereich kann dieses Produkt Funkstörungen verursachen. In diesem Fall kann vom Benutzer verlangt werden, angemessene Massnahmen zu ergreifen.

### **Advertencia de Marca de la CE**

Este es un producto de Clase B. 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 B. 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 B. Se utilizzato in ambiente domestico il prodotto può causare interferenze radio, nel cui caso è possibile che l'utente debba assumere provvedimenti adeguati.