

# **D-Link DSS-16+**

## **16-port 10/100 Ethernet Switch**

### **Manual**

*Rev. 072104*

**D-Link**  
**Building Networks for People**

Ver.1.00

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## ***ABOUT THIS GUIDE***

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Congratulations on your purchase of the DSS-16+ 16-port 10/100Mbps Auto-negotiation Fast Ethernet Switch. This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a highly flexible package.

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### **Purpose**

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This guide discusses how to install your DSS-16+.

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### **Terms/Usage**

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In this guide, the term “**Switch**” (first letter upper case) refers to DSS-16+ 16-port 10/100Mbps Fast 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.

***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***

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This chapter describes the features of the DSS-16+ and some background information about Ethernet/Fast Ethernet switching technology.

### **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 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 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 DSS-16+ is designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

- ✓ *16-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 for each port*
- ✓ *Wire speed reception and transmission*
- ✓ *Store-and-Forward switching method*
- ✓ *Integrated address Look-Up Engine, supports 8K absolute MAC addresses*
- ✓ *Supports 4Mbits 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***

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This chapter provides unpacking and setup information for the DSS-16+.

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### **Unpacking**

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

- ✓ *One DSS-16+ 16-port 10/100Mbps Fast Ethernet Switch*
- ✓ *One AC power cord, suitable for your area's electrical power connections*
- ✓ *Four rubber feet to be used for shock cushioning*
- ✓ *Screws and two mounting brackets*
- ✓ *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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Please consider the following when setting up the Switch:

1. *The surface must support at least 5 kg.*
  2. *The power outlet should be within 1.42 meters (6 feet) of the device.*
  3. *Visually inspect the power cord and see that it is secured fully to the AC power connector.*
  4. *Make sure that there is proper heat dissipation from and adequate*
-

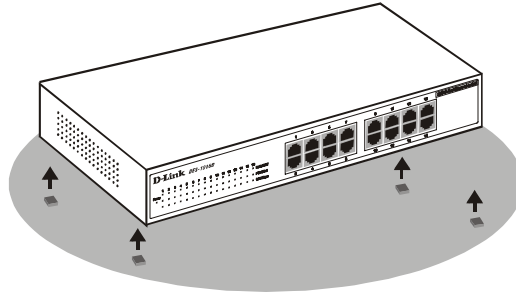
*ventilation around the Switch. Do not place heavy objects on the Switch.*

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## **Desktop Installation**

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When installing the Switch on a desktop, the rubber feet included with the device must be attached first. 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**

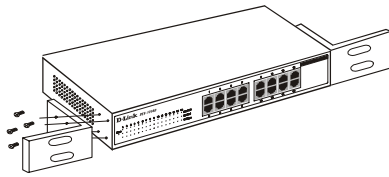
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## **Rack Mounting**

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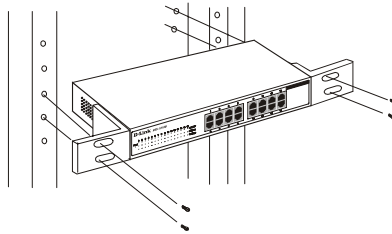
The DSS-16+ can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment. Attach the mounting brackets at the switch's front panel (one on each side), and secure them with the provided screws.





**Attaching the mounting brackets to the Switch**

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



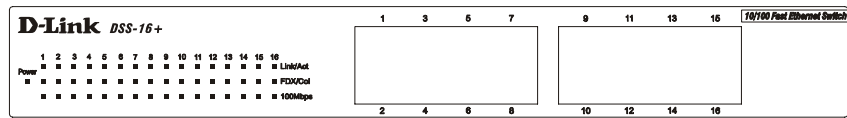
**Installing the Switch in an equipment rack**

## ***IDENTIFYING EXTERNAL COMPONENTS***

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This section identifies all the major external components of the DSS-16+.

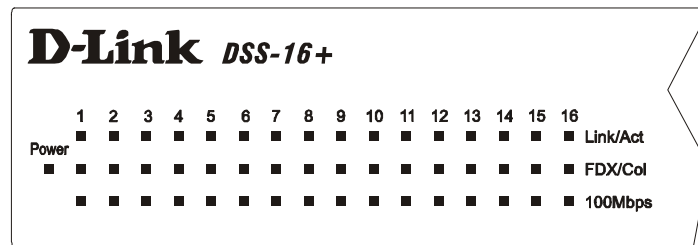
The figure below shows the front panels of the DSS-16+.



### **16-port 10/100Mbps Fast Ethernet Switch**

#### ***1. LED Indicator Panel***

Refer to the detailed information about each of the DSS-16+'s LED indicators.



#### **◆ Power**

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

#### **◆ Link / Act (Link/Activity)**

This indicator lights on when the port is connected to a Fast Ethernet or Ethernet device; if the light is blinking, it indicates that data is being transmitted or received.

◆ **FDX / Col (Full-duplex/Collision)**

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

◆ **100Mbps**

This LED indicator lights green when the port is connected to a 100Mbps Fast Ethernet station. Otherwise, the LED is off when the port is connected to a 10Mbps Ethernet device.

2. *Twisted-Pair Ports*

These ports support auto-negotiation for speeds of 10M or 100M, and operation modes of full or half duplex. They also support Auto-MDI/MDIX crossover detection function for giving a true “plug and play” capability. Just plug the network cable directly into the Switch. It makes no difference if the end node is a NIC (Network Interface Card,) a switch, or a hub.

## ***TECHNICAL SPECIFICATION***

<b>General</b>	
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	10BASE-T: 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	16 x 10/100Mbps Auto-MDI ports
<b>Physical and Environmental</b>	
AC inputs	100 to 240 VAC, 50 or 60 Hz internal universal power supply
Power Consumption	6 watts. (max.)
Temperature	Operating: 0° ~ 40° C, Storage: -10° ~ 70° C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	280(W) × 180(D)× 44(H) mm
EMI:	FCC Class A, CE Mark Class A, VCCI Class A
Safety	cUL

<b>Performance</b>	
Transmits Method:	Store-and-forward
RAM Buffer:	4Mbits per device
Filtering Address Table:	8K entries per device
Packet Filtering/Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps
MAC Address Learning:	Automatic update

## ***WARRANTY AND REGISTRATION***

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D-Link Systems, Inc. (“D-Link”) provides this 5-Year 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.
- Products purchased and delivered within the fifty United States, the District of Columbia, US Possessions or Protectorates, US Military Installations, addresses with an APO or FPO.

**5-Year Limited Hardware Warranty:** D-Link warrants that the hardware portion of the D-Link products described below (“Hardware”) will be free from material defects in workmanship and materials from the date of original retail purchase of the Hardware, for the period set forth below applicable to the product type (“Warranty Period”).

**3-Year Limited Warranty for the Product(s) is defined as follows**

- Hardware (excluding power supplies and fans)
- Spare parts and spare kits Ninety (90) days.

D-Link’s sole obligation shall be to repair or replace the defective Hardware at no charge to the original owner. 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 of an identical make, model or part; D-Link may in its 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. The Warranty Period shall extend for an additional ninety (90) days after any repaired or replaced Hardware is delivered. 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 delivery of the Software for a period of ninety (90) days (“Warranty Period”), if 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. 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. The Warranty Period shall extend for an additional ninety (90) days after any replacement Software is delivered. 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 for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

***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.
- The customer is responsible for all shipping charges to and from D-Link (No CODs allowed). Products sent COD will become the property of D-

Link Systems, Inc. Products should be fully insured by the customer and shipped to **D-Link Systems, Inc., 17595 Mt. Herrmann Stree, Fountain Valley, CA 92708.**

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 that 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; and Any hardware, software, firmware or other products or services provided by anyone other than D-Link.

***Disclaimer of Other Warranties:*** EXCEPT FOR THE 5-YEAR LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

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**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.

**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 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 instructions, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

# ***REGISTRATION***

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Register your product on-line at:  
<http://support.dlink.com/register>

Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

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