D-Link®

DGS-105/108
5/8-Port Gigabit Ethernet Switch

Manual

RECYCLABLE

V1.0

Manual abstract:

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. 13 iii D-Link DGS-105/108 Gigabit Ethernet Switch Preface The DGS-105/108 Manual is divided into sections that describe the system installation and operating instructions with examples. Section 1, Introduction - A description of the physical features of the Switch, including LED indicators, ports and panel descriptions. @@@@@@@@Intended Readers The DGS-105/108 Manual contains information for setup and management and of the DGS-105/108 Switch. This manual is intended for network managers familiar with network management concepts and terminology. Notes, Notices, and Cautions NOTE: A NOTE indicates important information that helps you make better use of your device. NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem. CAUTION: A CAUTION indicates the potential for property damage, personal injury, or death. Iv D-Link DGS-105/108 Gigabit Ethernet Switch Safety Instructions Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

Throughout this safety section, the caution icon ( ) is used to indicate cautions and precautions that you need to review and follow. Safety Cautions To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions. observe and follow service markings. Do not service any product except as explained in your system documentation. Opening or removing covers that are marked with the triangular symbol with a lightning bolt may expose you to an electrical shock.

Only a trained service technician should service components inside these compartments. If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider: â□□ The power cable, extension cable, or plug is damaged. Â□□ The product does not operate correctly when you follow the operating instructions. Â□¢ â□¢ Keep your system away from radiators and heat sources. also , do not block cooling vents.

Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide or contact your trained service provider. Do not push any objects into the openings of your system. Doing so can cause a fire or an electric shock by shorting out interior components. Use the product only with approved equipment. Allow the product to cool before removing covers or touching internal components. Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company. To help avoid damaging your system, be sure the voltage selection switch (if provided) on the power supply is set to match the power available at your location: â□□ 115 volts (V)/60 hertz (Hz) in most of North and South America and some Far Eastern countries such as South Korea and Taiwan. â□□ 100 V/50 Hz in eastern Japan and 100 V/60 Hz in western Japan.

Â□□ 230 V/50 Hz in most of Europe, the Middle East, and the Far East. Also be sure that attached devices are electrically rated to operate with the power available in your location. Use only approved power cable(s). If you have not been provided with a power cable for your system or for any AC-powered option intended for your system, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product. To help prevent an electric shock, plug the system and peripheral power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.

observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip. To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS). Position system cables and power cables carefully; route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.

Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications. Always follow your local/national wiring rules. Â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ v D-Link DGS-105/108 Gigabit Ethernet Switch â□¢ When connecting or disconnecting power to hot-pluggable power supplies, if offered with your system, observe the following guidelines: â□□ Install the power supply before connecting the power cable to the power supply. Â□□ Unplug the power cable before removing the power supply.

Â□□ If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies. Move products with care; ensure that all casters and/or stabilizers are firmly connected to the system. avoid sudden stops and uneven surfaces. Â□¢ General Precautions for Rack-Mountable Products Observe the following precautions for rack stability and safety. Also refer to the rack installation documentation accompanying the system and the rack for specific caution statements and procedures. systems are considered to be components in a rack. Thus, "component" refers to any system as well as to various peripherals or supporting hardware. CAUTION: Installing systems in a rack without the front and side stabilizers installed could cause the rack to tip over, potentially resulting in bodily injury under certain circumstances. Therefore, always install the stabilizers before installing components in the rack. @@@@@@@@@@@@@@@@@@@@Ensure that proper airflow is provided to components in the rack.

@@NOTE: A qualified electrician must perform all connections to DC power and to safety grounds. All electrical wiring must comply with applicable local or national codes and practices. CAUTION: Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor.

Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. CAUTION: The system chassis must be positively grounded to the rack cabinet frame. Do not attempt to connect power to the system until grounding cables are connected. Completed power and safety ground wiring must be inspected by a qualified electrical inspector. An energy hazard will exist if the safety ground cable is omitted or disconnected. Vi D-Link DGS-105/108 Gigabit Ethernet Switch Protecting Against Electrostatic Discharge Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components, such as the microprocessor.

You can do so by periodically touching an unpainted metal surface on the chassis. You can also take the following steps to prevent damage from electrostatic discharge (ESD): 1. When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component in your system. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body. 2.

When transporting a sensitive component, first place it in an antistatic container or packaging. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap. Vii D-Link DGS-105/108 Gigabit Ethernet Switch SECTION 1 Introduction Ethernet Technology D-Linkâs Green Technology Switch Description Features Ports Front-Panel Components Ethernet Technology Fast Ethernet Technology 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 are proposed to provide greater bandwidth and improve client/server response times. Among them, Fast Ethernet, or 100BASE-T, provides a non-disruptive, smooth evolution from 10BASE-T technology.

It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Ethernet protocol. gigabit Ethernet Technology 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.

@@@ figure 1-2. @@ a description of these LED indicators follows (see LED Indicators). @@@@Ï§ Link/Act This LED indicator light is green when the port is succerc;¢ A 1000BASE-T switch can be connected to the Switch via a twisted -pair Category 5 or better UTP/STP cable. 9 D-Link DGS-105/108 Gigabit Ethernet Switch Figure 3-2. @@@@1000BASE-LX â A long wavelength for a "long haul" fiber optic cable for a maximum length of 10 kilometers. Aging â The automatic removal of dynamic entries from the Switch Database which have timed-out and are no longer valid. ATM is designed to carry a complete range of user traffic, including voice, data, and video signals.

Auto-negotiation â A feature on a port, which allows it to advertise its capabilities for speed, duplex, and flow control. When connected to an end station that also supports auto-negotiation, the link can self-detect its optimum operating setup. Backbone port â A port that does not learn device addresses, and that receives all frames with an unknown address. Backbone ports are normally used to connect the Switch to the backbone of your network. Note that backbone ports were formerly known as designated downlink ports. Backbone â The part of a network used as the primary path for transporting traffic between network segments. Bandwidth â Information capacity, measured in bits per second, that a channel can transmit. The bandwidth of Ethernet is 10Mbps, the bandwidth of Fast Ethernet is 100Mbps. baud rate â The switching speed of a line. Also known as line speed.

BOOTP â The BOOTP protocol allows you to automatically map an IP address to a given MAC address each time a device is started. In addition, the protocol can assign the subnet mask and default gateway to a device. Bridge â A device that interconnects local or remote networks no matter what higher level protocols are involved. Broadcast storm â Multiple simultaneous broadcasts that typically absorb available network bandwidth and can cause network failure. console port â The port on the Switch accepting a terminal or modem connector.

It changes the parallel arrangement of data within computers to the serial form used on data transmission links. This port is most often used for dedicated local management. cSMA/CD â Channel access method used by Ethernet and IEEE 802. 3 standards, in which devices transmit only after finding the data channel clear for some period of time. When two devices transmit simultaneously, a collision occurs and the colliding devices delay their retransmissions for a random amount of time.

Data center switching â The point of aggregation within a corporate network where a switch provides highperformance access to server farms, a high-speed backbone connection, and a control point for network management and security. @@@@@@ prevents packet loss at a congested switch port. @@Full duplex â A system that allows packets to be transmitted and received at the same time and, in effect, doubles the potential throughput of a link. Half duplex â A system that allows packets to be transmitted and received, but not at the same time. A unique identifier for a device attached to a network using TCP/IP. The address is written as four octets separated with full-stops (periods), and is made up of a network section, an optional subnet section and a host section. A network of connected computing resources (such as PCs, printers, servers) covering a relatively small geographic area (usually not larger than a floor or building). characterized by high data rates and low error rates. @@@@ mDIX â Medium Dependent Interface Cross-over. @@@@The Switch contains its own internal MIB.

multicast â Single packets copied to a specific subset of network addresses. These addresses are specified in the destination-address field of the packet. Protocol â A set of rules for communication between devices on a network. the rules dictate format , timing , sequencing , and error control. Resilient link â A pair of ports that can be configured so that one will take over data transmission should the other fail. Subset of SNMP MIB II, which allows monitoring and management capabilities by addressing up to ten different groups of information.

rPS â Redundant Power System. A device that provides a backup source of power when connected to the Switch. Server farm â A cluster of servers in a centralized location serving a large user population. sLIP â Serial Line Internet Protocol.
A protocol that allows IP to run over a serial line connection. SNMP is presently implemented on a wide range of computers and networking equipment and may be used to manage many aspects of network and end station operation. Spanning Tree Protocol â (STP) A bridge-based system for providing fault tolerance on networks. STP works by allowing you to implement parallel paths for network traffic, and to ensure that redundant paths are disabled when the main paths are operational and enabled if the main paths fail. Stack â A group of network devices that are integrated to form a single logical device. Standby port â The port in a resilient link that will take over data transmission if the main port in the link fails. Switch â A device that filters, forwards, and floods packets based on the packetâs destination address. The Switch learns the addresses associated with each switch port and builds tables based on this information to be used for the switching decision. TCP/IP â A layered set of communications protocols providing Telnet terminal emulation, FTP file transfer, and other services for communication among a wide range of computer equipment. Telnet â A TCP/IP application protocol that provides virtual terminal service, letting a user log in to another computer system and access a host as if the user were connected directly to the host.
tFTP â Trivial File Transfer Protocol. Allows you to transfer files (such as software upgrades) from a remote device using your switchâs local management capabilities. uDP â User Datagram Protocol. An Internet standard protocol that allows an application program on one device to send a datagram to an application program on another device. vLAN â Virtual LAN. A group of location- and topology-independent devices that communicate as if they are on a common physical LAN. vLT â Virtual LAN Trunk. A Switch-to-Switch link which carries traffic for all the VLANs on each Switch. VT100 â A type of terminal which uses ASCII characters. .