D-Link®

Product Highlights

L3 Static Routing
Supports Inter-VLAN and static routing for improved efficiency

Multiple Device Management
Virtual stacking allows managment of up to 32 devices

Traffic Prioritization for Voice and Video
Auto Surveillance VLAN (ASV) and Auto Voice VLAN ensure Security and telephone systems have highest priority.

Energy Efficient Technology
IEEE 802.3az EEE and D-Link Green 3.0 technology help reduce energy use and operating costs.

DGS-1500-20/28/28P/52

SmartPro Switch

Features

Green Technology
• IEEE 802.3az EEE
• Power saving via LED and Port shutoff
• Power saving via Cable Length detection
• Power saving via Link Status detection
• Time-based PoE (DGS-1500-28P only)

Security Features
• Access Control List secures network
• D-Link Safeguard Engine protects CPU from Broadcast/Multicast/Unicast Flooding
• ARP Spoofing Prevention
• SSL

Intuitive Management
• SmartConsole utility or Web-based GUI
• Single IP Management (Virtual Stacking)
• Built-in SNMP MIB for remote NMS (D-View 6.0)
• Inexpensive Gigabit solution for small and medium business

VoIP Deployment
• Auto Voice VLAN

Overview

D-Link's DGS-1500 Series SmartPro switches are designed for SMBs which need functions such as Static Routing and Single IP Management (Virtual Stacking). This series integrates advanced management and security functions that are similar to those of a managed switch, but less complex. The switches feature D-Link Green™ 3.0 technology which enable significant power savings.

Additionally, the DGS-1500-28P's 10/100/1000 Mbps ports are PoE-enabled for powering devices such as IP cameras, VoIP phones and wireless access points. Compliant with 802.af and 8023.at, the DGS-1500-28P is capable of providing up to 30 Watts on all ports when paired with a DPS-700. The DPS-700 enables the DGS-1500-28P to have 1+1 power redundancy and boosts the total PoE budget to 740 W. By itself, the DGS-1500-28P has a PoE power budget of 370 W, allowing it to provide up to 15.4 W to all ports simultaneously. Time-based PoE enables power to a port to be shut off at a scheduled time, reducing power usage and increasing security by powering off devices that should not be in use during non-business hours.

Management options include SNMP, Web Management, SmartConsole Utility, and Compact CLI. The series also supports ACL filtering and D-Link's Safeguard Engine. The DGS-1500-20 and DGS-1500-28 both feature a fanless design. The fanless design emits less noise than a standard switch, increases the products' lifetimes, and makes them better suited for office environments.

D-Link Green™ 3.0 Technology

D-Link takes the lead in developing innovative and power-saving technology that does not sacrifice operational performance or functionality. The DGS-1500 Series implements D-Link Green™ 3.0 Technology, which includes a power saving mode, smart fans, reduced

QoS

- Supports IEEE 802.1p QoS, up to four Priority Queues per port
- Bandwidth Control
- DSCP

Advanced Features

- Static Routing
- IPv6 support[1]
- Auto Surveillance VLAN
- Port or VLAN-based Loopback detection
- Cable Diagnostics
- Configurable MDI/MDIX
- LLDP/LLDP-MED

Trap & Logs

- SNMP Trap
- Trap for SmartConsole Utility
- System Log

1 The DGS-1500 Switch Series will support IPv6 in a future firmware upgrade

heat dissipation, and cable length detection. The power-saving features include being able to schedule when to turn off LEDs and ports when not in use, and when to make the switch enter hibernation mode. The switches also detect the length of connected cables to automatically adjust power usage by saving energy on shorter cable connections of less than 20 meters. The switches can also support powersaving by link status, which drastically reduces power consumption by automatically putting ports without a link into sleep mode. The DGS-1500-28P and DGS-1500-52 both feature built-in smart fans that contribute to continuous, reliable, and eco-friendly operation of the switch. Using a thermal sensor that can detect temperature change, the fans can react accordingly by utilizing different fan speeds for different temperatures.

Advanced Features

The DGS-1500 Series includes advanced features such as Virtual Stacking and Static Routing. Virtual Stacking reduces the number of IP addresses needed on a network by configuring up to 32 devices to appear as a single unit with one IP address. This simplifies network management for small workgroups and allows for switches to be added without special cabling. In static routing, IP routes are manually entered into a routing table, which allows for communication between different user groups in different VLAN segments in a network. The switch can directly handle inter VLAN routing using multiple interfaces, making the network run faster and more efficiently. Because the switches can manage internal routing, the network router can be assigned to handle external traffic routing only.

Extensive Layer 2 Features

These switches are equipped with a complete lineup of Layer 2 features including IGMP Snooping, Port Mirroring, Spanning Tree, and Link Layer Discovery Protocol (LLDP). The IEEE 802.3x Flow Control function allows servers to directly connect to the switch for fast, reliable data transfer. At 2000 Mbps Full Duplex, the Gigabit ports provide high-speed data pipes to servers with minimum data transfer loss. Network maintenance features include Loopback Detection and Cable Diagnostics. Loopback Detection is used to detect loops created by a specific port or VLAN and automatically shut down the affected port or VLAN. The Cable Diagnostics feature, designed primarily for adminstrators and customer service representatives, can quickly discover the type of error on cables and determine the cable quality

VLAN and Bandwidth Control

The DGS-1500 Series supports Auto Surveillance VLAN (ASV) and Auto Voice VLAN, which are best suited for video surveillance and VoIP deployments. Auto Surveillance VLAN is a new, industry-leading technology built into D-Link Smart Switches. This technology consolidates data and surveillance video transmission through a single SmartPro switch, thus sparing businesses the expense of maintaining dedicated hardware and facilities. ASV also ensures the quality of real-time video for monitoring and control without compromising the transmission of conventional network data. The Auto Voice VLAN technology enhances VoIP service by automatically placing voice traffic from an IP phone to an assigned VLAN with higher priority. This guarantees the quality and security of the VoIP traffic. Furthermore, the DSCP markings on Ethernet packets enable different levels of service to be assigned to network traffic. As a result, these voice and video packets take precedence over other packets. In addition, with Bandwidth Control, network administrators can reserve bandwidth for important functions that require more bandwidth or might require higher priority.
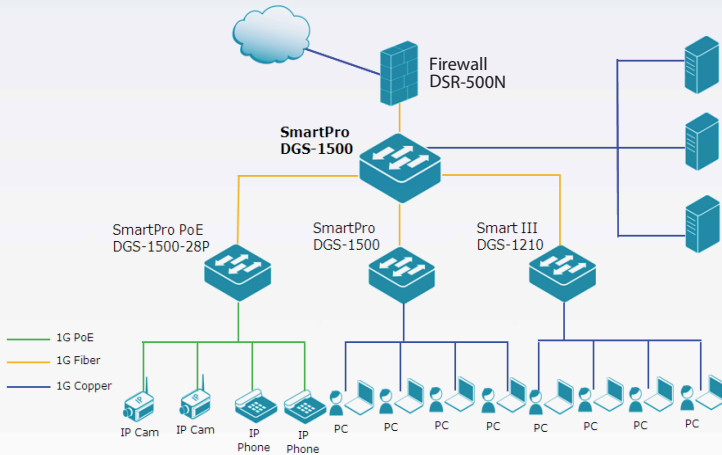
Secure your Network

D-Link's innovative Safeguard Engine protects the switches against traffic flooding caused by virus attacks. The switches also support 802.1X portbased authentication, allowing the network client to be authenticated through external RADIUS servers. In addition, the Access Control List (ACL) feature enhances network security and helps to protect the network by screening traffic from illegal MAC or IP addresses. The DGS-1500 Series includes ARP Spoofing Prevention, which protects from attacks on the Ethernet network that may allow an intruder to sniff data frames, modify traffic, or bring traffic to a halt altogether by sending fake ARP messages to the network. For added security, the DHCP Server Screening feature screens rogue DHCP server packets from user ports to prevent unauthorized IP assignment.
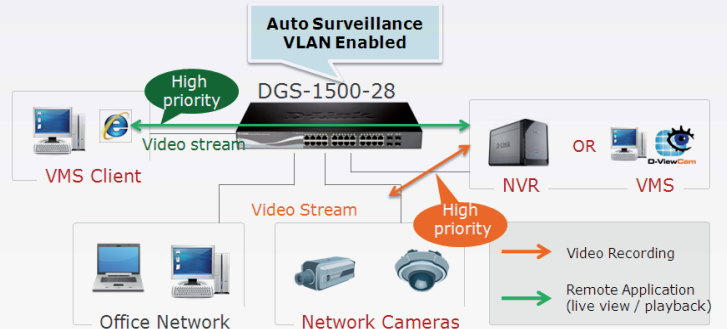
Versatile Management

The DGS-1500 series provides a SmartConsole utility and a web-based management interface that enables administrators to remotely control their network down to the port level. The SmartConsole easily allows customers to discover multiple D-Link Smart Switches within the same L2 network segment. With this utility, users do not need to change the IP address of their PC. It also simplifies the initial setup of the Smart Switches. Switches within the same L2 network segment that are connected to the user's PC are displayed on screen for instant access. This allows extensive switch configuration and basic setup of discovered devices including password changes and firmware upgrades. The DGS-1500 Series also supports D-View 6.0 and a Compact Command Line Interface (CLI). D-View 6.0 is a Network Management System that allows for the central management of critical network characteristics such as availability, reliability, resilience, and security. CLI management of the switches is possible via Telnet. This makes it possible to adjust basic settings, passwords, configuration files, and firmware with ease.

Deploying the DGS-1500 Series in an Office Environment

Deploying the DGS-1500 Series in an Auto Surveillance VLAN

Technical Specification

	DGS-1500-20	DGS-1500-28	DGS--1500-28P	DGS-1500-52

General

Port Standard & Functions	• IEEE 802.3 10BASE-T Ethernet (twisted-pair copper) • IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper) • IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted- pair copper)Auto-negotiation • IEEE 802.3x Flow Control support for Full-Duplex Mode		• IEEE 802.3 10BASE-T Ethernet (twisted-pair copper) • IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper) • IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted-pair copper) • IEEE 802.3af compliance • IEEE 802.3at compliance Auto-negotiation • IEEE 802.3x Flow Control support for Full-Duplex Mode Legacy Mode support	• IEEE 802.3 10BASE-T Ethernet (twisted-pair copper) • IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper) • IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted-pair copper) Auto-negotiation • IEEE 802.3x Flow Control support for Full-Duplex Mode
Number of Ports	16: 10/100/1000 Mbps 4 SFP	24: 10/100/1000 Mbps 4 SFP	24: 10/100/1000 Mbps PoE capable, 4 SFP	48: 10/100/1000 Mbps 4 SFP
Network Cables	UTP Cat. 5, Cat. 5e (100 m max.) EIA/TIA-568 100-ohm STP (100 m max.)			
Full/Half Duplex	Full/half duplex for 10/100 Mbps speeds Full duplex for Gigabit speed			
Media Interface Exchange	Full duplex			

Performance

Switching Capacity	40 Gbps	56 Gbps		104 Gbps
Transmission Method	Store-and-forward			
MAC Address Table	16K entries per device			
MAC Address Update	Up to 256 static MAC entries Enable/disable auto-learning of MAC addresses			
Maximum 64 bytes packet forwarding rate	29.8Mpps	41.7 Mpps		77.4 Mpps
Packet Buffer Memory	1 MB per device			

PoE

PoE Standard	-		802.3af & 802.3at	-
PoE Capable Ports	-		15.4 W or 30 W on ports 1 to 24	-
PoE Power Budget	-		Max.: 370 W, 740 W with external RPS-700	-

	DGS-1500-20	DGS-1500-28	DGS--1500-28P	DGS-1500-52
Physical & Environmental				
AC Input	100 to 240 VAC, 50/60 Hz internal universal power supply			
Maximum Power Consumption	14.06 W	16.81 W	447 W (PoE on) 30.1 W (PoE off)	43.5 W
Standby Power Consumption	6.7 W/100 V 7.2 W/240 V	5.9 W/100 V 6.42 W/240 V	19.7 W/100 V 19.8 W/240 V	20.68 W/100 V 22.05 W/240 V
Fan Quantity	-		2 smart fans	
Acoustics	0 dBA		High speed: 55.3 dBA Low speed: 49.5 dBA	47.1 dBA (Max.)
Heat Dissipation	47.97 BTU/hr	57.36 BTU/hr	1525.16 BTU/hr	148.42 BTU/hr
Operating Temperature	-5 to 50 ˚C (41 to 122 ˚F)			
Storage Temperature	-20 to 70 ˚C (-4 to 158 ˚F)			
Operating Humidity	-5 to 50 ˚C (41 to 122 ˚F)			
Dimensions (L x W x H)	17.32 x 5.51 x 1.73 inches (19" standard rack mounting width, 1U height)	17.32 x 8.27 x 1.73 inches (19" standard rack mounting width, 1U height)	17.32 x 12.20 x 1.73 inches (19" standard rack mounting width, 1U height)	17.32 x 9.84 x 1.73 inches (19" standard rack mounting width, 1U height)
Weight	4.85 lbs	6.39 lbs	11.16 lbs	9.04 lbs
Diagnostic LEDs	Power (Per device) Link/Activity/Speed (Per 10/100/1000 Mbps port) Link/Activity/Speed (Per SFP port)		Power (Per device) Link/Activity/Speed (Per 10/100/1000 Mbps port) Link/Activity/Speed (Per SFP port) PoE (Per 10/100/1000 Mbps port) PoE Max RPS LED Select Indicator button	Power (Per device) Fan (Per device) Link/Activity/Speed (Per 10/100/1000 Mbps port) Link/Activity/Speed (Per SFP
Certifications	FCC Class A, CE Class A, ICES-003, VCCI Class A, C-Tick, BSMI			
Safety	UL/cUL, LVD			
MTBF	253,460 hours	236,739 hours	206,075 hours	201,517 hour

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DGS-1500-20/28/28P/52 SmartPro Switch

Software Specifications

D-Link Single IP Management

• Virtual Stacking/Clustering of up to 32 devices

L2 Features

• MAC Address Table	• IGMP per VLAN	• Many-to-One	• Cable Diagnostics
• 16K entries	• Supports IGMP	• Supports Mirroring for Tx/Rx/Both	• Configurable MDI/MDIX
• Flow Control	Snooping Querier	• 802.3ad Link Aggregation	• Multicast Filtering
• 802.3x Flow Control	• Spanning Tree Protocol	• DGS-1500-20: Max. 10 groups	• Forwards all unregistered groups
• HOL Blocking Prevention	• 802.1D STP	per device, 8 ports per group	• Filters all unregistered groups
• IGMP Snooping	• 802.1w RSTP	• DGS-1500-28/DGS1500-28P:	• Jumbo Frame
• IGMP v1/v2 Snooping	• 802.1s MSTP[2]	Max. 14 groups per device,	• Up to 10,000 bytes
• Supports 256 IGMP groups	• Loopback Detection	8 ports per group	• LLDP
• Supports at least 64 static	• Port Mirroring	• DGS-1500-52: Max. 26 groups	• LLDP-MED
multicast addresses	• One-to-One	per device, 8 ports per group	

VLAN

• 802.1Q	• Asymmetric VLAN
• VLAN Group	• Auto Voice VLAN
• Max. 4K static VLAN groups	• Max. 10 user defined OUI
• Max. 4094 VIDs	• Max. 8 default OUI
• GVRP	• Auto Surveillance VLAN
• Up to 256 dynamic VLANs	

QoS (Quality of Service)

• 802.1p Quality of Service	• IPv6 Traffic Class[3]
• 4 queues per port	• IPv6 flow label[3]
• Queue Handling	• TCP/UDP port[3]
• Strict	• Bandwidth Control
• Weighted Round Robin (WRR)	• Port-based (Ingress/Egress, min.
• CoS based on	granularity 10/100/1000 is 64 Kb/s
• 802.1p Priority Queues	
• DSCP	
• ToS3	

L3 Features

• ARP	• IPv6 Neighbor Discovery (ND)[2]
• 64 Static ARP	• IP Interface
• Supports Gratuitous ARP	• Supports 4 interfaces

L3 Routing

• Default Routing	• MAC Address
• Static Routing	• Ether Type
• Max. 32 IPv4 Static Route entries	• IPv4 Address
• Max. 128 IPv4 Host Routes	• DSCP
• Max. 16 IPv6 Static Route entries[2]	• Protocol Type
• Max. 64 IPv6 Host Routes[2]	

Security

- Port Security
  - Supports up to 64 MAC addresses per port
  - Broadcast/Multicast/Unicast Storm Control
- D-Link Safeguard Engine
- 802.1X Port-based Access Control
- DHCP Server Screening
- IP-MAC-Port Binding[2]
  - Supports 512 address binding entries
- ARP mode
- ACL mode
  - Supports DHCP Snooping
- ARP Spoofing Prevention
  - Max. 64 entries
- Traffic Segmentation
- SSL
  - Supports v1/v2/v3
  - Supports IPv63

AAA

- 802.1X Authentication
  - Supports local/ RADIUS database
  - Supports Port-based access control
  - Supports EAP, OTP, TLS, TTLS, PEAP
- IPv6 RADIUS Server[2]

MIB

- 1213 MIB II
- 1493 Bridge MIB
- 1907 SNMP v2 MIB
- 1215 Trap Convention MIB
- 2233 Interface Group MIB
- D-Link Private MIB
- LLDP MIB
- Power-Ethernet MIB[3]

RFC Standard Compliance

- RFC Standard Compliance
- RFC 783 TFTP
- RFC 854 Telnet Server
- RFC 951 BootP/DHCP Client
- RFC 1157 SNMP v1, v2, v3
- RFC 1213 MIB II
- RFC 1215 MIB Traps Convention
- RFC 1350 TFTP
- RFC 1493 Bridge MIB
- RFC 1769 SNTP
- RFC 1542 BootP/DHCP Client
- RFC 1901 SNMP v1, v2, v3
- RFC 1907 SNMP v2 MIB
- RFC 1908 SNMP v1, v2, v3
- RFC 2068 FCS
- RFC 2131 BootP/DHCP Client
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Authentication
- RFC 2233 Interface Group MIB
- RFC-2246 SSL
- RFC 2475
- RFC 2570 SNMP v1, v2, v3
- RFC 2575 SNMP v1, v2, v3
- RFC 2598 CoS

OAM

- Cable Diagnostics
- Factory Reset

Management

- Web-based GUI
- Single IP Management
- Compact CLI
- Telnet Server
- TFTP Client
- Configurable MDI/MDIX
- SNMP
  - Supports v1/v2/v3
- SNMP Trap
- Trap for SmartConsole Utility
- System Log
  - Max. 500 log entries
- BootP/DHCP Client
- ICMP v6[2]
- IPv4/v6 Dual Stack[2]
- DHCP Auto Configuration
- Debug Command
- Time Setting
  - SNTP
- RMONv1
- Trusted Host
- Time-based PoE[3]
- User Account
- Upload/Download Configuration file
- Backup/Upgrade firmware
- Smart Wizard
- SNTP

Green™ V3.0 Technology

- Power Saving by:
  - Link Status
  - Cable Length
- LED Shutoff
  - Port Standby
  - System Hibernation

Optional Products

Optional SFP Transceivers

DGS-712	1000BASE-T Copper
DEM-310GT	1000BASE-LX, Single-mode, 10 km
DEM-311GT	1000BASE-SX, Multi-mode, 550 m

Optional Management Software

DV-600S	D-View 6.0 Network Management System (Standard Edition)
DV-600P	D-View 6.0 Network Management System (Professional Edition)

Optional Redundant Power Supply for DGS-1500-28P

DPS-700	589 Watts Redundant Power Supply 370 Watts PoE Power Budget

QR CODES	DGS-1500-20	DGS-1500-28	DGS-1500-28P	DGS-1500-52
Scan Codes for more Information				

[2] Available for the next firmware release in 2012.
[3] Available on DGS-1500-28P only.

For more information

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