D-Link®
Building Networks for People

DGS-1500 Series
SmartPro Switch

Features

Green Technology

- IEEE 802.3az EEE
- Power saving via LED and port shutoff
- Power saving via port standby
- Power saving via system hibernation
- Power saving via cable length detection
- Power saving via link status detection
- Time-based PoE (DGS-1500-28P only)

Security Features

- D-Link Safeguard Engine protects CPU from Broadcast/Multicast/Unicast flooding
- ARP spoofing prevention
- SSL
- Access Control List (ACL) secures network

Intuitive Management

- Single IP Management (Virtual Stacking)
- Built-in SNMP MIB for remote NMS (D-View 6.0)
- SmartConsole utility or Web-based GUI

Advanced Features

- Static Routing
- Voice VLAN
- Auto Surveillance VLAN
- LLDP/LLDP-MED

The DGS-1500 Series SmartPro Switch is the premier choice for SMBs that need powerful, flexible networking. The DGS-1500 Series features fanless models that stay cool and noiseless, as well as a PoE option that's smart on energy consumption. All models include other smart power-saving technologies such as port standby and LED shutoff. Above all the DGS-1500 Series is secure, featuring SSHv02, SSL, ARP Spoofing Prevention, and more.

D-Link Green™ V3.0 Technology

The DGS-1500 Series implements D-Link Green™ 3.0 Technology, which includes a power saving mode, smart fan, increased 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 to enter hibernation mode. The switches can 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 power-saving by link status, which drastically reduces power consumption by automatically toggling sleep mode on ports without a link 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 features 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 workgroups and allows you to expand your network with D-Link's management software. In static routing, IP routes are manually entered into a routing table. The DGS-1500 Series switches support static routing, which allows for communication between different user groups in different VLAN segments in a network. The switches can fully handle the inter-VLAN routing 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 VoIP and video surveillance 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 and an individual VLAN, these features guarantee the quality and security of 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 high 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 port-based 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 the Ethernet network from attacks 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.
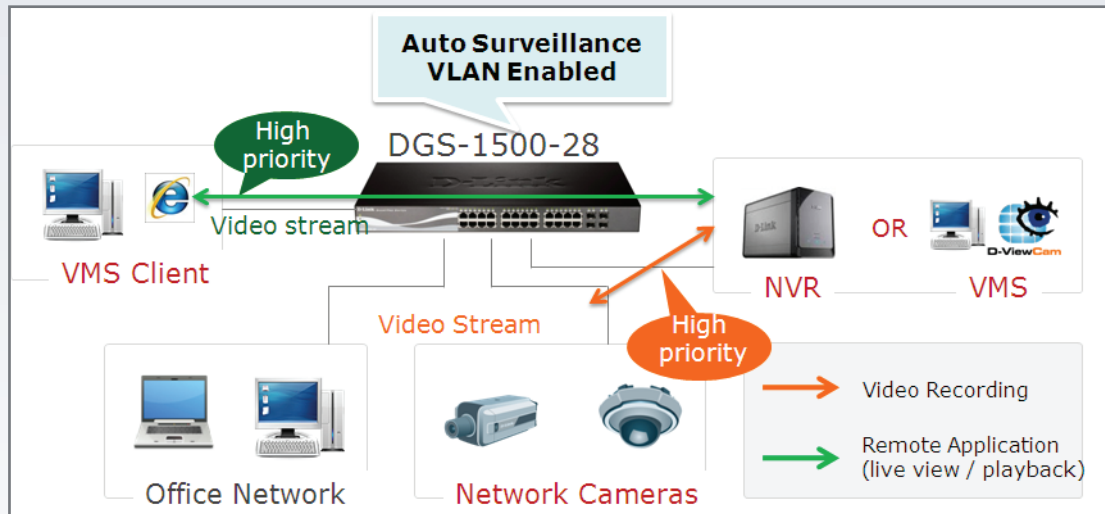
Versatile Management

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 Web 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 Compact Command Line Interface (CLI) through Telnet. 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
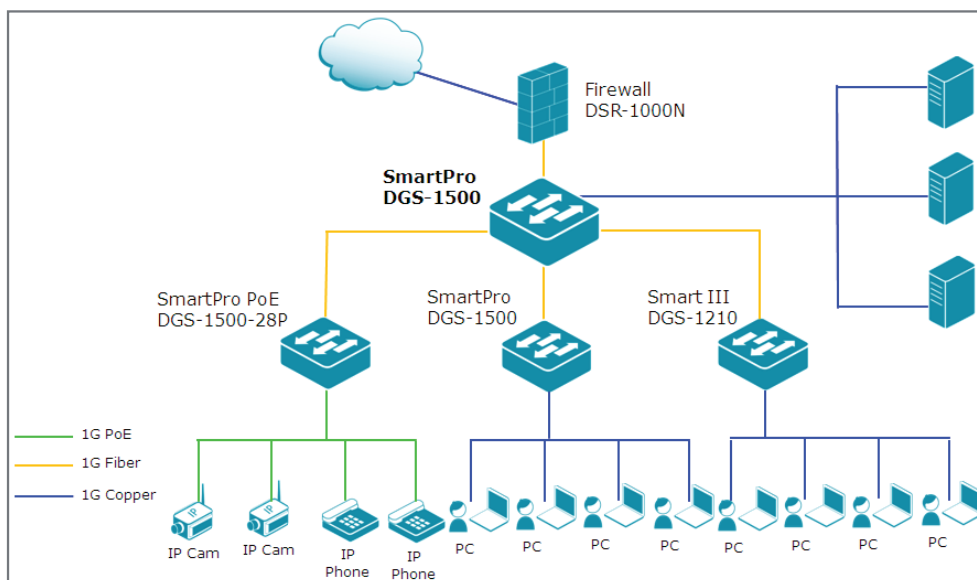
Deploying the DGS-1500 Series in an Auto Surveillance VLAN

Technical Specifications

General

Model	DGS-1500-20	DGS-1500-28	DGS-1500-28P	DGS-1500-52
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) • 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 dual-speed 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	• Auto MDI/MDIX adjustment			

Performance

Model	DGS-1500-20	DGS-1500-28	DGS-1500-28P	DGS-1500-52
Switching Capacity	• 40 Gbps	• 56 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	• 29.8 Mpps	• 41.7 Mpps	• 41.7 Mpps	• 77.4 Mpps
Packet Buffer Memory	• 1 MB per device			

PoE

Model	• DGS-1500-20	• DGS-1500-28	• DGS-1500-28P	• DGS-1500-52
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	—

Physical/Environmental

Model	• DGS-1500-20	• DGS-1500-28	• DGS-1500-28P	• DGS-1500-52
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	• 2 smart fans
Acoustics	• 0 dBA	• 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	• 0% to 95% non-condensing			
Storage Humidity	• 0% to 95% non-condensing			
Dimensions (L x W x H)	• 440 x 140 x 44 mm (17.32 x 5.51 x 1.73 inches) (19" standard rack mounting width, 1U height)	• 440 x 210 x 44 mm (17.32 x 8.27 x 1.73 inches) (19" standard rack mounting width, 1U height)	• 440 x 310 x 44 mm (17.32 x 12.20 x 1.73 inches) (19" standard rack mounting width, 1U height)	• DGS-1500-52: 440 x 250 x 44 mm (17.32 x 9.84 x 1.73 inches) (19" standard rack mounting width, 1U height)
Weight	• 2.2 kg (4.85 lbs)	• 2.9 kg (6.39 lbs)	• 5.062 kg (11.16 lbs)	• 4.1 kg (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)	• 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 port)

Certifications	• FCC Class A • CE Class A • ICES-003 • VCCI Class A • C-Tick • BSMI			
MTBF	• 253,460 hours	• 236,739 hours	• 206,075 hours	• 201,517 hours
Safety	• cUL, LVD			
OAM	• Factory Reset			

Software (all models except where noted)

D-Link Single IP Management	• Virtual Stacking/Clustering of up to 32 units over IPv6

L2 Features	• MAC Address Table
	  • 16K entries
	• IGMP Snooping
	  • IGMP v1/v2 Snooping
	  • Supports 256 IGMP groups
	  • Supports at least 64 static multicast addresses
	  • IGMP per VLAN
	  • Supports IGMP Snooping Querier
	• Loopback Detection
	• 802.3ad Link Aggregation
	  • DGS-1500-20: Max. 10 groups per device, 8 ports per group
	  • DGS-1500-28/DGS-1500-28P: Max. 14 groups per device, 8 ports per group
	  • DGS-1500-52: Max. 26 groups per device, 8 ports per group
	• LLDP
	• LLDP-MED
	
	• Spanning Tree Protocol
	  • 802.1D STP
	  • 802.1w RSTP
	  • 802.1s MSTP
	• Flow Control
	  • 802.3x Flow Control
	  • HOL Blocking Prevention
	• Port Mirroring
	  • One-to-One
	  • Many-to-One
	  • Supports Mirroring for Tx/Rx/Both
	• Cable Diagnostics
	• Configurable MDI/MDIX
	• Multicast Filtering
	  • Forwards all unregistered groups
	  • Filters all unregistered groups
	• Jumbo Frame
	  • Up to 10,000 bytes

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

Quality of Service (QoS)	• 802.1p Quality of Service
	• 4 queues per port
	• Queue Handling
	  • Strict
	  • Weighted Round Robin (WRR)
	• Bandwidth Control
	  • Port-based (Ingress/Egress, min granularity 10/100/1000 is 64 Kbs)
	
	• QoS based on:
	  • 802.1p Priority Queues
	  • DSCP
	  • ToS
	  • IPv6 Traffic Class
	  • IPv6 Flow Label
	  • TCP/UDP port

L3 Features	• IPv6 Neighbor Discovery (ND)
	• IP Interface
	  • Supports 4 interfaces
	
	• ARP
	  • 64 Static ARP
	  • Supports Gratuitous ARP

L3 Routing	• Default Routing • Static Routing • Max. 32 IPv4 Static Route entries • Max. 128 IPv4 Host Routes • Max. 16 IPv6 Static Route entries • Max. 64 IPv6 Host Routes

Access Control List (ACL)	• DGS-1500-20/28/28P:
	  • Max. 50 profiles
	  • Max. 200 rules shared by profiles
	  • Each rule can be associated with a single port or multiple ports
	• DGS-1500-52:
	  • Max. 50 profiles
	  • Max. 450 rules shared by profiles
	
	  • Each rule can only be associated with a single port
	• ACL based on
	  • MAC Address
	  • IPv6 Address (ICMP/IGMP/TCP/UDP)
	  • 802.1p
	  • DSCP Ethernet type

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

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

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 MIB4 • Zone Defense MIB
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 • RFC 2616 FCS • RFC 2618 RADIUS Authentication • RFC 2819 RMON v1 • RFC 2865 RADIUS Authentication • RFC 3164 System Log • RFC 3195 System Log • RFC 3411-17 SNMP • RFC 3621 Power Ethernet MIB
OAM	• Cable Diagnostics	

Management	• Web-based GUI
	• Single IP Management
	• Compact CLI
	• Telnet Server
	• TFTP Client
	• Configurable MDI/MDIX
	• SNMP
	  • Supports v1/v2c/v3
	• SNMP Trap
	• Trap for SmartConsole Utility
	• Backup/Upgrade firmware
	• Smart Wizard
	• Upload/Download Configuration file
		• System Log
		  • Max. 500 log entries
		• BootP/DHCP Client
		• SNTP
		• ICMP v6
		• IPv4/v6 Dual Stack
		• DHCP Auto Configuration
		• Debug Command
		• Time Setting
		  • SNTP
		• RMONv1
		• Trusted Host
		• Time-based PoE (DHP-1500-28P only)
		• User Account (Max. 4 concurrent sessions)

Green™ V3.0 Technology	• Power Saving by:
	  • Link Status
	  • Cable Length
		• LED Shutoff
		  • Port Standby
		  • System Hibernation
		  • Port Shutoff

Order Information

Part Number	Description
DGS-1500-20	16-Port 10/100/1000 Mbps + 4 SFP SmartPro Switch
DGS-1500-28	24-Port 10/100/1000 Mbps + 4 SFP SmartPro Switch
DGS-1500-28P	24-Port 10/100/1000 Mbps PoE + 4 SFP SmartPro Switch
DGS-1500-52	48-Port 10/100/1000 Mbps PoE + 4 SFP SmartPro Switch

Optional Management Software (all models)	
DV-600S	D-View 6.0 Network Management Software (Standard Edition)
DV-600P	D-View 6.0 Network Management Software (Professional Edition)
Optional SFP Transceivers (all models except where noted)	
DGS-712	1000 Base-T Copper
DEM-310GT	1000BASE-LX, single-mode, 10 km
DEM-311GT	1000BASE-SX, multi-mode, 550 m
DEM-312GT2	1000BASE-SX, multi-mode, 2 km
DEM-314GT	1000BASE-LHX, single-mode, 50 km
DEM-315GT	100BASE-ZX, single-mode, 80 km
DEM-210 (DGS-1500-52 only)	100BASE-FX, single-mode, 15 km
DEM-211 (DGS-1500-52 only)	100BASE-FX, multi-mode, 2 km
Optional WDM SFP Transceivers (all models except where noted)	
DEM-330T/R	Gigabit, Wavelength Tx:1550 nm, Rx:1310 nm, Single-mode, 10 km
DEM-331T/R	Gigabit, Wavelength Tx:1550 nm, Rx:1310 nm, Single-mode, 40 km
DEM-220T (DGS-1500-52 only)	1000BASE-LX, Wavelength Tx: 1550 nm, Rx: 1310 nm, single-mode, 20 km
DEM-220R (DGS-1500-52 only)	1000BASE-LX, Wavelength Tx: 1550 nm, Rx: 1310 nm, single-mode, 20 km
Optional Redundant Power Supply (DGS-1500-28P only)	
DPS-700	589 Watts Redundant Power Supply 370 Watts PoE Power Budget

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