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Product Highlights

Future Ready Metro Access

Cost effective Gigabit access and 10G uplinks provide enough bandwidth for future broadband access. Fully IPv6 support provides seamless migration path for ISP.

Outstanding Triple Play Support

Comprehensive IPTV and QoS features help provide ISP better ROI (Return of investment) per fixed line.

Reliable, Secure Network

Various hardware and software design protect your network from physical damage and invisible attack.

DGS-3000 Series

Layer 2 Gigabit Managed Switch

Features

Proper Design for Gigabit Metro/Campus Access

- 8 10/100/1000BASE-T ports and two combo 10/100/1000BASE-T/SFP uplink ports
- 20 10/100/1000BASE-T Gigabit ports and 4 combo 10/100/1000BASE-T/SFP ports with 2 10G SFP+ uplink ports
- Alarm/event trigger for external sensors[1]

Reliable Hardware and Software Features

- 6kV surge protection for Ethernet ports
- Redundant Power Supply (RPS) support
- 50ms Ethernet recovery mechanism for various network topologies
- Protocol-less loop detection protect network from uncontrolled grey area

Outstanding Triple Play Support

- Multiple Set-Top Box (STB) per leased line
- Easy channel and service package management
- Strict STB authentication
- Comprehensive service OAM for quick trouble shooting

Data Leakage Prevention

- Various user/device authentication method
- Clientless user/device authentication, easy to deploy
- Strict address binding to prevent malicious attack

The DGS-3000 Series is part of the Layer 2 family of D-Link's managed switch product line. The switches provide wired Gigabit speed access for metro and campus networks. The two embedded 10G SFP+ ports on the DGS-3000-26TC guarantee performance during aggregation of numerous Gigabit connections. The DGS-3000 Series is designed as a 1U rackmount case suitable for desktops and telecom cabinets. The DGS-3000-10TC is more compact, using a 9-inch case that comfortably fits in telecom distribution boxes. The smaller dimensions provide better air flow in limited spaces and also make cable management easier. The embedded alarm port of DGS-3000-26TC allows for input of external sensors to detect potential threats such as open doors or cabinet overheating which then trigger warning events. This is extremely useful for a device that may be widely deployed in any metropolitan environment.

Reliability

All of the Ethernet ports of the DGS-3000 Series support 6kV surge/lightning protection. This feature protects the switch from power surges due to lightning or improper electrical wiring when the Ethernet cables are exposed in open spaces, such as in old buildings. The switch also provides an additional power connector for connection to D-Link's DPS-200 Redundant Power Supply, or a stable, protected 12VDC backup power source in case of a main power failure. For Ethernet link fail-over, the DGS-3000 Series supports 802.1D Spanning Tree Protocol (STP), 802.1w Rapid Spanning Tree Protocol (RSTP), and 802.1s Multiple Spanning Tree Protocol (MSTP), to allow automatic backup of bridge paths. Using these features, the transmission and reception of frames can be guaranteed even during a network failure. For mission critical environments, the switches also support ITU-I G.8032 Ethernet Ring Protection Switching (ERPS); traffic can be re-routed around the ring within 50 milliseconds, minimizing disruption to service. D-Link Loopback Detection (LBD) is a protocol-less loop detection function that prevent loop events from causing congestion in uncontrolled network segments such as unmanaged switches or customer networks. The DGS-3000 Series also support 802.1AX and 802.3ad Link Aggregation, which allows grouping of multiple ports in parallel to increase bandwidth and redundancy for high availability and load sharing in a multi-client environment.

DGS-3000 Series Layer 2 Gigabit Managed Switch

Triple Play

The DGS-3000 Series features full L2 multicast functions, including IGMP/MLD snooping, fast leave, and filtering. With L2 multicast support, the switches can handle the increasingly popular IPTV service. Host-based IGMP/MLD Snooping provide service to multiple IPTV subscribers per physical interface and ISM VLAN registers multicast streams in a multicast VLAN to save bandwidth on the network backbone. The ISM VLAN profiles allow users to bind or replace the channel profiles of subscription ports quickly and easily. The DGS-3000 Series also supports IGMP authentication, which can prevent rogue IPTV subscriptions by authenticating Set Top Boxes as well as channel switching to secure Internet Service Provider (ISP) revenues.

The DGS-3000 Series supports advanced Quality of Service (QoS) functions to help the ISP deliver high-quality triple play services. Flexible packet classification can be based on various header fields or user-defined packet content to help administrators prioritize network traffic. Two-rate and single-rate Three Color Marker (trTCM/srTCM) help classify traffic streams into conforming and nonconforming groups to guarantee the minimum bandwidth for prioritized packets. The Bandwidth Control feature allows the ISP to define the upstream/downstream throughput levels for each port with granularity down to 64 kbps.

Easy Maintenance and Troubleshooting

The DGS-3000 Series features rich Operations, Administration, and Management (OAM) features to help the ISP reduce the burden of maintenance and troubleshooting. Cable diagnostics display the status of Ethernet cables and locate the position of cable errors remotely, helping the provider cut the costs of on-site support. The 802.1ag Connectivity Fault Management (CFM) provides administrators with a convenient tool to monitor and troubleshoot end-to-end service networks. This allows service providers to check connectivity, isolate network issues, and identify the affected customers. D-Link Unidirectional Link Detection (DULD) helps detect a broken one-way fiber connection, improving the stability of the fiber infrastructure in the Metropolitan Area Network (MAN).

Security & Availability

The DGS-3000 Series offers various user/device authentication features including 802.1X, Web-based Access Control (WAC)[2] and MAC-based Access Control (MAC). The client-less WAC[2] and MAC functions provide convenience for IT managers implementing user/device authentication into a network. It permits administrators to control security without installing client software on each network device; this is especially important for devices on which the software cannot be installed. For a greater security level, the DGS-3000 Series also supports Compound Authentication[2], letting IT managers choose between multiple authentication methods for any single device. Selectable host-based authentication and authorization provides the option to finely control access by each device in the network. For advanced applications, the switches also provide RADIUS and TACACS accounting information for integration of backend services such as a billing system or advanced user/device control. In mission critical networks, the DGS-3000 Series supports strict address and interface binding function via IP-MAC-Port Binding (IMPB) and ARP Spoofing Prevention to protect the networks from Man-In-The-Middle or ARP Spoofing attacks.

To maintain a high availability network, the DGS-3000 Series supports D-Link Safeguard Engine to manage the CPU even if the network is overloaded by malicious traffic caused by worms and viruses. The switches also support DHCP Screening to filter out unauthorized DHCP offerings from rogue DHCP servers or routers. Other security features such as BPDU Attack Protection, DoS Attack Prevention and L3 Control Packet Filtering help to block leaks caused by protocol or behavioral security intrusions.

IPv6 Ready

Due to the increasing popularity of IPv6 applications, the DGS-3000 Series supports various IPv6 functions such as MLD Snooping, WAC[2], IPv6 ACL/QoS, and IMPBv6 to ensure seamless integration of next generation networks. The DGS-3000 Series also supports IPv4/v6 dual stack function that allows the switch to act as a bridge between IPv4 and IPv6 networks. Finally, all DGS-3000 Series members are certified to be IPv6 Ready Logo Phase 2, which guarantees conformance and interoperability in IPv6 environments.

Technical Specifications	DGS-3000-10TC	DGS-3000-26TC
Interface		
Ports	8-Port 10/100/1000 Base-T 2-Port Combo 10/100/1000BASE-T/SFP	20-Port 10/100/1000 Base-T 4-Port Combo 10/100/1000BASE-T/SFP 2-Port 10G SFP+
Optional Redundant Power Supply	DPS-200[3]	
Console Port	RJ-45	
Performance		
Switching Capacity	20 Gbps	88 Gbps
64 Byte Packet Forwarding Rate	14.88 Mpps	65.48 Mpps
MAC Address Table	16K Entries	

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DRAM for CPU	128 MB	
Packet Buffer Memory	1.5 MB	
Flash Memory	32 MB	
Jumbo Frame	12,288 Bytes	
Physical		
MTBF(hours)	711565.6 h	472842.5 h
Acoustic	33.8 dB	47.8 dB
Heat Dissipation	56.26 Btu/h	100.94 Btu/h
Power Input	AC Input 100 to 240 V AC, 50 to 60 Hz Internal Universal Power Supply	
Max Power Consumption	16.5 W	29.6 W
Dimensions (W x D x H)	228.5 x 195 x 44 mm	441 x 209.9 x 44 mm
Weight	1.11 kg	2.01 kg
Ventilation	Smart Fan (Turn on at > 26 ˚C; Turn off at < 20 ˚C)	Smart Fan (High Speed at > 40 ˚C; Low Speed at < 35 ˚C)
Power Surge Protection	All Ethernet ports support IEC61000-4-5 10/700us 6 kV surge protection	
Operation Temperature	0 ~ 50°C	
Storage Temperature	-40 ~ 70°C	
Operation Humidity	10% ~ 90% RH	
Storage Humidity	5% ~ 90% RH	
Emission (EMI)	CE, FCC, IC, C-Tick, VCCI, BSMI	
Safety	CB, UL/cUL, BSMI	
Certifications	IPv6 Ready Logo Phase 2	
Software Features		

Stackability	• Virtual Stacking:
	  • D-Link Single IP Management
	  • Up to 32 units per Virtual Stack	

L2 Features	• 16K MAC Address Table
	• Flow Control:
	  • 802.3x Flow Control
	  • HOL Blocking Prevention
	• Jumbo Frames up to 12K bytes
	• Spanning Tree Protocols:
	  • 802.1D STP
	  • 802.1w RSTP
	  • 802.1s MSTP
	• BPDU Filtering
	• Root Restriction
		• Loopback Detection
		• Link Aggregation:
		  • Compliant with 802.1AX and 802.3ad
		  • DGS-3000-10TC: Max. 5 groups, 8 ports per group
		  • DGS-3000-26TC: Max. 13 groups, 8 ports per group
		• Port Mirroring:
		  • Supports 1 Mirroring group
		  • Supports One-to-One, Many-to-One, Flow-based (ACL) Mirroring
		• Ethernet Ring Protection Switching (ERPS)
		• L2 Protocol Tunneling (L2PT)

L2 Multicasting	• IGMP Snooping:
	  • IGMP v1/v2 Snooping, v3 awareness
	  • Supports 1024 groups
	  • Port/Host-based IGMP Snooping Fast Leave
	  • Report Suppression
	• IGMP Authentication
	• IGMP/MLD Proxy Reporting
	• Limited IP Multicast (IGMP Filtering)
		• MLD Snooping:
		  • MLD v1, MLD v2 awareness
		  • Supports 1024 groups
		  • Host-based MLD snooping Fast Leave

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VLAN	• VLAN Group:
	  • Max. 4094 VLAN
	  • Port-based VLAN
	  • MAC-based VLAN
	• GVRP:
	  • Max. 255 dynamic VLANs
	• 802.1v Protocol VLAN
	• 802.1Q Tagged VLAN
		• Double VLAN (Q-in-Q):
		  • Port-based Q-in-Q
		  • Selective Q-in-Q
		• ISM VLAN
		• VLAN Translation
		• Voice VLAN
		• VLAN Trunking
		• Asymmetric VLAN

L3 Features	• Support 1024 ARP Entries • Gratuitous ARP	• IPv6 Neighbor Discovery (ND) • Default Route

Quality of Service (QoS)	• 8 queues per port
	• DSCP
	• 802.1p
	• Bandwidth Control:
	  • Port-based (Ingress/Egress, min. granularity 64 kbps)
	  • Flow-based (Ingress/Egress, min. granularity 64 kbps)
	  • Per egress queue bandwidth control (min. granularity 64 kbps)
	• Queue Handling:
	  • Strict Priority Queue (SPQ)
	  • Weighted Round Robin (WRR)
	  • Deficit Round Robin (DRR)
	  • SPQ + WRR
	• Supports the following actions for flows:
	  • Remark 802.1p Priority Tag
	  • Remark TOS/DSCP Tag
		• Time-based QoS
		• Three Color Marker
		  • trTCM
		  • srTCM
		• CoS Based on:
		  • 802.1p Priority Queues
		  • VLAN ID
		  • MAC Address
		  • Ether Type
		  • IPv4/v6 Address
		  • IPv6 Traffic Class
		  • IPv6 Flow Label
		  • DSCP
		  • Protocol Type
		  • TCP/UDP Port
		  • User-Defined Packet Content

Access Control List(ACL)	• ACL based on:
	  • Switch Port
	  • 802.1p Priority
	  • VLAN ID
	  • MAC Address
	  • Ether Type
	  • IPv4/v6 Address
	  • IPv6 Traffic Class
	  • IPv6 Flow Label
		• DSCP
		  • Protocol Type
		  • TCP/UDP Port Number
		  • User Defined Packet Content
		• Up to 1024 ingress access rules
		• Time-based ACL
		• ACL Statistics
		• CPU Interface Filtering

Security	• SSH v1/v2
	• SSL v1/v2/v3
	• Port Security
	  • Up to 64 MAC addresses per port
	• Broadcast/Multicast/Unicast Storm Control
	• IP-MAC-Port Binding (IMPB):
	  • ARP Inspection
	  • IP Inspection
	  • DHCP Snooping
		• Traffic Segmentation
		• D-Link Safeguard Engine
		• L3 Control Packet Filtering
		• NetBIOS/NetBEUI Filtering
		• DHCP Server Screening
		• DHCP Client Filtering
		• ARP Spoofing Prevention
		• BPDU Attack Protection
		• DoS Attack Prevention

AAA	• 802.1X
	  • Port-based Access Control
	  • Host-based Access Control
	  • Dynamic VLAN Assignment
	• MAC-based Access Control (MAC)
	  • Port-based Access Control
	  • Host-based Access Control
	  • Dynamic VLAN Assignment
	• Web-based Access Control (WAC)[2]
	  • Port-based Access Control
	  • Host-based Access Control
	  • Dynamic VLAN Assignment
	• Japan Web-based Access Control (JWAC)
	  • Host-based Access Control
	  • Dynamic VLAN Assignment
		• Compound Authentication[2]
		• Microsoft® NAP (IPv4/v6)
		  • Supports 802.1x NAP
		  • Supports DHCP NAP
		• Guest VLAN
		• RADIUS (IPv4/v6)
		• TACACS
		• TACACS+
		• XTACACS+
		• Trusted Host
		• RADIUS Accounting
		• TACACS+ Accounting
		• Four-level User Account

OAM	• Cable Diagnostics • 802.3ah Ethernet Link OAM • 802.1ag Connectivity Fault Management (CFM)	• 802.3ah D-link Unidirectional Link Detection (DULD) • Y.1731 OAM[2] • sFlow

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Green	• IEEE 802.3az Energy Efficient Ethernet (EEE) • Power-saving function • Link Status • Cable Length	• LED Shut-Off • Port Shut-Off • Port Standby • System Hibernation

Management	• Web-based GUI (Supports IPv4/v6)
	• Command Line Interface (CLI)
	• Telnet Server/Client (Supports IPv4/v6)
	• TFTP Client (Supports IPv4/v62)
	• FTP Client (Supports IPv4/v6)
	• ZModem
	• Command Logging
	• SNMP v1/v2c/v3
	• SNMP Traps
	• System Log
	• SMTP
	• RMON v1:
	  • Supports 1,2,3,9 groups
	• RMON v2:
	  • Supports Probe Config group
	• 802.1AB LLDP
	• LLDP-MED
		• BootP/DHCP Client
		• DHCP Auto-Configuration
		• DHCP Relay (Support IPv4)
		• DHCP Relay Option 60, 61 and 82
		• DHCP Client Option 12
		• PPPoE Circuit-ID Tag Insertion
		• Multiple Image
		• Flash File System
		• CPU Monitoring
		• Memory Monitoring
		• NTP/SNTP
		• Debug Command
		• Password Recovery
		• Password Encryption
		• Ping (Supports IPv4/v6)
		• Traceroute
		• Microsoft® NLB (Network Load Balancing) Support

MIB	• RFC1065, 1066, 1155, 1156, 2578 MIB Structure • RFC1212 Concise MIB Definitions • RFC1213 MIB II • RFC1215 MIB Traps Convention • RFC1493, 4188 Bridge MIB • RFC1157, 2571-2576 SNMP MIB • RFC1901-1908, 3418, 3636, 1442, 2578 SNMPv2 MIB • RFC271,1757, 2819 RMON MIB • RFC2021 RMONv2 MIB • RFC1398, 1643, 1650, 2358, 2665, 3635 Ether-like MIB • RFC2668 802.3 MAU MIB • RFC2674, 4363 802.1p MIB • RFC2233, 2863 Interface Group MIB • RFC2618 RADIUS Authentication Client MIB	• RFC4022 MIB for TCP • RFC4113 MIB for UDP • RFC3298 MIB for Diffserv • RFC2620 RADIUS Accounting Client MIB • RFC 2925 Ping & Traceroute MIB • Running configuration write and backup • TFTP uploads and downloads • Trap MIB • RFC 2465 IPv6 MIB • RFC 2466 ICMPv6 MIB • RFC 2737 Entity MIB • RFC 4293 IPv6 SNMP Mgmt Interface MIB • Private MIB • RFC 3289 DIFFSERV MIB
IETF® Standard	• RFC768 UDP • RFC791 IP • RFC792 ICMPv4 • RFC2463, 4443 ICMPv6 • RFC4884 Extended ICMP to Support Multi-Part Messages • RFC793 TCP • RFC826 ARP • RFC1338, 1519 CIDR • RFC2474, 3168, 3260 Definition of the DS Field in the IPv4 and IPv6 Header • RFC1321, 2284, 2865, 2716, 1759, 3580, 3748 Extensible Authentication Protocol (EAP) • RFC2571, RFC2572, RFC2573, RFC2574 SNMP	
IPv6	• RFC2460 IPv6 • RFC2461, 4861 Neighbor Discovery • RFC2462, 4862 IPv6 Stateless Address Auto-configuration • RFC2464 IPv6 Neighbor over Ethernet and definition • RFC3513, 4291 IPv6 Addressing Architecture • RFC2893, 4213 IPv4/IPv6 dual stack function • IPv6 Ready Logo Phase 2	

Ordering Information

DGS-3000-10TC	8-Port 10/100/1000 Base-T + 2-Port Combo 10/100/1000BASE-T/SFP, L2 Management Switch
DGS-3000-26TC	20-Port 10/100/1000 Base-T + 4-Port Combo 10/100/1000BASE-T/SFP + 2-Port 10G SFP+, L2 Management Switch

Redundant Power Supply and Cable

DPS-200	60-watt RPS with a 1-meter DC power cable
DPS-CB150-2PS	The RPS cable for DGS-3000 and DPS-200

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 Accessory	
DEM-CB100S	10-GbE SFP+ 1m Direct Attach Cable
DEM-CB300S	10-GbE SFP+ 3m Direct Attach Cable
DEM-CB500S	10-GbE SFP+ 5m Direct Attach Cable
DEM-CB700S	10-GbE SFP+ 7m Direct Attach Cable
DEM-CB100QXS-4XS	40G QSFP+ to 4-Port 10G SFP+ 1m Direct Attach Cable
Optional SFP Transceivers	
DEM-302S-LX	1000Base-LX, Single-mode, 2km
DEM-310GT	1000Base-LX, Single-mode, 10km
DEM-311GT	1000ase-SX, Mutli-mode, 550m
DEM-312GT2	1000Base-SX, Multi-mode, 2km
DEM-314GT	1000BASE-LHX, Single-mode, 50km
DEM-315GT	1000BASE-ZX, Single-mode, 80km
DGS-712	1000BASE-T Copper SFP Transceiver
DEM-210	100Mbps Single-Mode SFP Transceiver, 15km
DEM-211	100Mbps Multi-Mode SFP Transceiver, 2km
Optional WDM SFP Transceivers	
DEM-302S-BXD	Gigabit WDM(BiDi) Single-Mode 2KM SFP Transceiver(TX-1550/RX-1310 nm)
DEM-302S-BXU	Gigabit WDM(BiDi) Single-Mode 2KM SFP Transceiver(TX-1310/RX-1550 nm)
DEM-330R	Gigabit WDM(BiDi) Single-Mode 10KM SFP Transceiver (TX-1310/ RX-1550 nm)
DEM-330T	Gigabit WDM(BiDi) Single-Mode 10KM SFP Transceiver (TX-1550/ RX-1310 nm)
DEM-331R	Gigabit WDM(BiDi) Single-Mode 40KM SFP Transceiver (TX-1310/ RX-1550 nm)
DEM-331T	Gigabit WDM(BiDi) Single-Mode 40KM SFP Transceiver (TX-1550/ RX-1310 nm)
DEM-220R	100Base-BX-U Single-Mode 20KM SFP Transceiver (TX-1310/RX-1550 nm)
DEM-220T	100Base-BX-D Single-Mode 20KM SFP Transceiver (TX-1550/RX-1310 nm)
Optional SFP+ Transceivers	
DEM-431XT	10GBASE-SR SFP+ Transceiver (w/o DDM), 80m: OM1 & OM2 MMF,300m: OM3 MMF
DEM-431XT-DD	10GBASE-SR SFP+ Transceiver (with DDM), 80m: OM1 & OM2 MMF, 300m: OM3 MMF
DEM-432XT	10GBASE-LR SFP+ Transceiver (w/o DDM), 10km
DEM-432XT-DD	10GBASE-LR SFP+ Transceiver (with DDM), 10km
DEM-433XT	10GBASE-ER SFP+ Transceiver (w/o DDM), 40km
DEM-433XT-DD	10GBASE-ER SFP+ Transceiver (with DDM), 40km
DEM-435XT	10GBASE-LRM SFP+ Transceiver (w/o DDM), 220m: OM1 & OM2 MMF, 300m: OM3 MMF

DEM-435XT-DD	10GBASE-LRM SFP+ Transceiver (with DDM), 220m: OM1 & OM2 MMF, 300m: OM3 MMF
DEM-436XT-BXU	10GBASE-LR BiDi SFP+ Transceiver (w/o DDM) 20km, TX: 1270nm, RX: 1330nm
DEM-436XT-BXD	10GBASE-LR BiDi SFP+ Transceiver (w/o DDM) 20km, TX: 1330nm, RX: 1270nm

[1] DGS-3000-26TC only
[2] Available in the future
[3] Please use DPS-CB150-2PS for connecting DPS-200 to DGS-3000.

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