

## L3 Gigabit Stack

### Multi-Layer Routing Switch

- Up to 24 Gigabit Connections Per Switch
- 12 Combo 1000BASE-T/ SFP Fiber
- 2 Open Slots for Optional 10-Gigabit Modules
- Physical Stacking
- Robust Security with Enhanced Performance and Availability
- Malicious Traffic and Performance Degradation Prevention

#### FEATURES

##### Flexible Choices

- Supports 12 10/100/1000BASE-T plus 12 Combo 10/100/1000BASE-T/SFP ports, or 12 SFP plus 12 Combo 10/100/1000BASE-T/SFP ports per Switch
- 2 Open Slots for Optional Single-Port 10 Gigabit Ethernet Modules
- Stackable Through 10-Gigabit Extension Modules

##### High Resiliency

- 802.1D/w/s Spanning Tree, 802.3ad -Link Aggregation
- Rapid Ether Ring Protection (RERP)
- Virtual Router Redundancy Protocol (VRRP)

##### Quality of Service

- 8 Hardware Queues
- 802.1p Priority Queues/Multi-Layer CoS
- IP Multicast Support for Bandwidth-Intensive Applications
- Flow-based Bandwidth Control

##### Robust Security

- Advanced L2/L3/L4 ACL
- IP-MAC-Port Binding
- Virus/Malicious Traffic Flooding Prevention
- CPU Protection Policy (CPP)

##### L3 Routing

- RIP/OSPF/BGP
- Policy Based Routing (PBR)
- ECMP/WCMP
- PIM-DM/SM/SSM

##### IPv6 Ready

- ICMPv6
- IPv6 Neighbor Discovery
- IPv6/v4 Tunneling
- RIP/OSPFv3
- PIM v6\*

The xStack DGS-3610 series of the D-link's next generation Layer 3 Gigabit switches delivers performance, flexibility and enhanced security for the MAN (Metropolitan Area Network). Two models are available for selection, the DGS-3610-26 and DGS-3610-26G. Each switch provides 24 Gigabit ports and two optional 10-Gigabit ports in a low-profile rack-mount case. The DGS-3610-26 is equipped with 12 10/100/1000BASE-T and 12 combo 10/100/1000BASE-T/SFP ports, and the DGS-3610-26G supports 12 SFP and 12 combo 10/100/1000BASE-T/SFP ports. The 10/100/1000BASE-T ports provide inexpensive copper Gigabit connection to the local nodes. While the SFP slots and our wide-range of SFP transceivers offer flexible long/medium/short fiber connections suitable for FTTX and MAN applications. Two open slots on the back of each switch allow users to install two optional single-port 10-Gigabit XFP modules for copper or fiber connections. These 10-Gigabit connections can be used for switch unit stacking, or attachment to a 10-Gigabit backbone or servers.

The switches offer advanced L3 features including IPv4/v6 routing, BGP, QoS and ACL filtering. Packet routing and protocol filtering/inspection enable the switch act as a Layer 4 switch.

**High Reliability.** The DGS-3610 switches support a number of link reliability technologies including Rapid Ether Ring Protocol (RERP). RERP is a network protection mechanism which ensure normal operations without impacting network convergence time. It can rapidly start up the backup link when a link or node on the Ethernet ring is disconnected. Other network resiliency features include Spanning Tree, Rapid Spanning Tree and Multiple Spanning Tree protocol support.

**Comprehensive IPv6 Support.** Emerging applications such as Internet-enabled wireless devices, home and industrial appliances, Internet-connected transportations, integrated telephony services, sensors networks, and distributed computing or gaming requirements are further addressed to ensure the continued growth of the Internet. The use of globally unique IPv6 addresses simplifies the mechanisms used for reachability and end-to-end security for network devices. This vital functionality is crucial for applications and services that are driving the demand for IP addresses.

**Enterprise Wide Security.** Access security is provided through comprehensive policy-based ACL, port security, IP-MAC-Port binding features and Defeat IP Scan. Meanwhile malicious attacks hidden behind control protocols are thwarted to prevent the switch's CPU from being overwhelmed with redundant tasks and cause performance degradation. The DGS-3610 also supports SSH v2 and SNMP v3 functions to ensure secure management access to switches with authentication and encryption of network management traffic.

**QoS & Bandwidth Management.** The DGS-3610 supports numerous advanced traffic management options including flow-based bandwidth control and broadcast/multicast storm control. It also supports egress traffic bandwidth control with minimum granularity of 64Kbits. With a combination of Rate Limiting function (applicable to CPE subscribers) and access control-based accounting, the DGS-3610 provides useful functions for carriers that offer services to home users in a Metropolitan Ethernet Network.

**Comprehensive Management.** A comprehensive set of management features is provided to ensure enterprise wide visibility and control for configuration, access/traffic monitoring and troubleshooting to network administrators. These features are accessible through a CLI, Telnet or SNMP console. RMON monitoring, and complete debug system information, alert information and interface management are also supported.



**Technical Specifications**

**DGS-3610-26**

**DGS-3610-26G**



<b>Interface</b>	10/100/1000BASE-T Ports	12	-
	SFP Slots	-	12
	Combo 10/100/1000BASE-T SFP Ports	12	12
	Open Slots for 10-Gigabit Uplink Modules	2	2
	RJ-45 Console Port	1	1
<b>Physical Stacking</b>	Installable Module for Stacking	DEM-412CX or DEM-412X	
	Max Number of Stacking Ports Installable	2 CX4 or XFP Ports	
	Stacking Speed (Per Port)	40G (Full-Duplex)	
	No. of Units Per Stack	8	8
<b>Optional 10-Gigabit Uplink</b>	Single-port XFP Slot Module (DEM-412X)	✓	✓
	Single-port CX4 Port Module (DEM-412CX)	✓	✓
<b>Performance</b>	Switching Capacity	88Gbps	88Gbps
	Maximum Forwarding Rate	65.48Mpps	65.48Mpps
	Packet Buffer	2MB	2MB
	MAC Address Table	16K Entries	16K Entries
	IP v4/v6 Routing Table	12K Entries	12K Entries
	IP v6 Routing Table	6K Entries	6K Entries
	IP v4 Host Table	8K Entries	8K Entries
	IP v6 Host Table	4K Entries	4K Entries
	Jumbo Frame Size	9,216 Bytes	9,216 Bytes
<b>Power</b>	Power Supply	100 to 120VAC, 200 to 240VAC, 50/60Hz, Internal Power Supply	
	Power Consumption (Max.)	70 Watts	70 Watts
<b>Physical/Environmental</b>	Heat Dissipation	238.85 BTU/Hr	238.85 BTU/Hr
	Acoustic	<51.1dB	<51.1dB
	Dimensions	440mm x 435mm x 44mm	
	Size	19-Inch Rack-Mount Width, 1U Height	
	Weight (Without Optional Module)	8.5 kg	8.5 kg
	Operating Temperature	0° to 40°C	0° to 40°C
	Storage Temperature	-40° to 70°C	-40° to 70°C
	Operating Humidity	10% to 90% RH	10% to 90% RH
	Storage Humidity	5% to 90% RH	5% to 90% RH
MTBF	188,129 Hours	210,864 Hours	

## Software Features

### Stackability

- + Up to 8 devices per stack
- + Supports Linear and Ring topology
- + Up to 40G stacking bandwidth
- + Allows trunking or mirroring to span multiple units of the stack

### L2 Features

- + 16K MAC Address Table
- + IGMP snooping
  - 1K Groups
  - IGMP Proxy
- + Spanning Tree
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
- + Rapid Ether Ring Protection (RERP)\*
  - Supports up to 16 domains\*
  - Recovering L2 traffic in 500ms\*
- + Rapid Link Detection Protocol (RLDP)
- + 802.3ad Link Aggregation
  - 12 Trunk Groups, 8 Ports per Group
- + Port Mirroring:
  - One-to-One
  - Multi-to-One
  - Tx/Rx/Both port mirroring
- + Head of Line Blocking Prevention

### VLAN

- + 802.1Q Tagged VLAN
- + 802.1v
- + VLAN Group: 4K
- + Port-Based VLAN
- + Super VLAN
- + Private VLAN
- + Double VLAN (Q-in-Q)
  - Port-Based Q-in-Q
  - Selective Q-in-Q\*

### L3 Features

- + Max 2K IP interface
- + Secondary IP
- + VRRP
- + IPv6 Tunneling
  - Manual Tunnel
  - ISATAP
  - 6- to- 4

### L3 Routing

- + Routing Entries: 12K
- + L3 Forwarding Entries: 8K
- + Static Routes: Max. 1K
- + Policy Based Route
- + Multi Path Router
  - ECMP /WCMP
- + RIP
  - RIP v1/v2
  - RIPng (IPv6)
- + OSPF

- OSPF v2
- OSPF v3 (IPv6)
- Stub/NSSA Area
- + BGP v4
- + BGP+ v4 (IPv6)\*

### L3 Multicasting

- + PIM-DM
- + PIM-DM v6 \*
- + PIM-SM
- + PIM-SM v6\*
- + PIM-SSM
- + PIM-SSM v6\*
- + IGMP v1/v2/v3
- + PIM Snooping

### QoS (Quality of Service)

- + 802.1p Class of Service (CoS)
- + 8 queues
- + Queue Handling:
  - Strict
  - Weighted Round Robin (WRR)
  - ST+WRR
- + CoS based on:
  - MAC address
  - VLAN ID
  - 802.1p
  - IP address or IP prefix
  - DSCP/IP precedence
  - IP protocol type
  - TCP/UDP port number
- + Time based QoS

### ACL (Access Control List)

- + 1790 ACL Rules
- + ACL Based on
  - MAC Address
  - VLAN ID
  - 802.1p Priority Queues
  - IP Address or IP Prefix
  - DSCP/IP Precedence
  - IP Protocol Type
  - TCP/UDP Port Number
- + Time-based ACL

### Security

- + CPU Protection Policy (CPP)
- + SSH
- + Port Security
- + Defeat IP Scan
- + IP-MAC-Port Binding

### AAA

- + 802.1X
  - Port-Based Access Control
  - MAC-Based Access Control
  - Dynamic VLAN Assignment
- + Accounting

- Period Accounting
- Multiple Accounting
- + RADIUS

### Management

- + Command Line Interface (CLI)
- + Telnet Server
- + TFTP
- + DHCP Server
- + DHCP Relay
- + XModem
- + SNMP v1/v2c/v3
- + SNMP Trap
- + System Log
- + RMON v1
  - Support 1,2,3,9 Groups
- + DNS Client
- + Debug
- + NTP/SNTP
- + File System
  - Flash storage media
  - Multiple Firmware
  - Multiple Configuration
- + System Status LED

### MIB/IETF Standard

- + RFC1213 MIB-II
- + RFC1493 Bridge MIB
- + RFC1901, 1907 SNMPv2 MIB
- + RFC1157, 2571~2576 SNMP MIB
- + RFC1271, 2819 RMON MIB
- + RFC3569 PIM-SSM MIB
- + D-Link Private MIB
- + RFC2362 PIM-SM
- + RFC2338, 2787 VRRP
- + RFC1075 DVMRP
- + RFC2474~2475 DiffServ
- + RFC2674 802.1p
- + RFC2138~2139, 2865~2866 RADIUS
- + RFC1370, 1587, 1765, 1850,2328, 2370 OSPF
- + RFC1771, 1997, 2439, 2796, 2842, 2918 BGP
- + RFC1542, 2131, 3046 DHCP
- + RFC3069 Super VLAN
- + RFC3411~3417 SNMP
- + RFC768 UDP
- + RFC791 IP
- + RFC793 TCP
- + RFC854 Telnet
- + RFC1305 NTP
- + RFC1350 TFTP
- + RFC1769 SNTP
- + RFC2096 IP FDB MIB
- + RFC1724 RIP v2 MIB
- + RFC2933 IGMP v3 MIB

\* Function available in future firmware upgrade

## Product Description

### DGS-3610 Series

**DGS-3610-26** 12-port 10/100/1000 Base-T with 12 Combo 10/100/1000Base-T/SFP and 2 open slots for 10GE modules

**DGS-3610-26G** 12-port SFP with 12 Combo 10/100/1000 Base-T/SFP and 2 open slots for 10GE modules

## Optional Products

### Extension Modules

**DEM-412CX** 1 port 10GE CX4 module

**DEM-412X** 1 port 10GE XFP module

### Accessories

**DEM-CB100CX** 1m CX4 cable

**DEM-CB-300CX** 3m CX4 cable

### Optional Management Software

**DV-600P** D-View 6.0 Network Management Software Professional Edition

**DV-600S** D-View 6.0 Network Management Software Standard Edition

### Optional 10-Gigabit XFP Transceivers

**DEM-421XT** XFP transceiver, 10GBASE-SR standard, multi-mode fiber, max. distance 300 m, 3.3/5V

**DEM-422XT** XFP transceiver, 10GBASE-LR standard, single-mode fiber, max. distance 10 km, 3.3/5V

**DEM-423XT** XFP transceiver, 10GBASE-ER standard, single-mode fiber, max. distance 40 km, 3.3/5V

### Optional SFP Transceivers

**DEM-310GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V

**DEM-311GT** SFP transceiver, 1000BASE-SX standard, multi-mode fiber, max. distance 550m, 3.3V

**DEM-312GT2** SFP transceiver 1000BASE-SX standard, multi-mode fiber, max. distance 2km, 3.3V

**DEM-314GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 50km, 3.3V

**DEM-315GT** SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 80km, 3.3V

**DEM-330T** WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V, Tx wavelength 1550 nm, Rx wavelength 1310 nm

**DEM-330R** WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 10 km, 3.3V, Tx wavelength 1310 nm, Rx wavelength 1550 nm

**DEM-331T** WDM SFP transceiver, 1000BASE-LX standard, single-mode fiber, max. distance 40 km, 3.3V, Tx wavelength 1550 nm, Rx wavelength 1310 nm

**DEM-331R** WDM SFP transceiver 1000BASE-LX standard, single-mode fiber, max. distance 40 km, 3.3V, Tx wavelength 1310 nm, Rx wavelength 1550 nm