Flexible Choices
- 24 or 48* 10/100 Mbps ports
- 4 or 2 combo Gigabit copper/SFP uplinks for connections either in cabinets or metropolitan areas
- Selectable software images provide sophisticated feature set for your environment*
- Adjustable switch databases for different applications*

Reliability
- 802.1D/802.1w/802.1s Spanning Tree
- Loopback Detection (LBD)
- Ethernet Ring Protection Switching (ERPS)
- Redundant Power Supply (RPS)

Security
- Multi-Layer Access Control List (ACL)
- IP-MAC-Port Binding (IMPB)
- D-Link Safeguard Engine
- DHCP Server Screening
- BPDU Attack Protection
- ARP Spoofing Prevention

AAA
- 802.1X
- Web-based Access Control (WAC)
- MAC-based Access Control (MAC)
- Compound Authentication
- Identity-Driven Policies
- Microsoft® NAP support
- RADIUS Accounting

Triple Play
- IGMP/MLD Snooping
- IGMP Snooping Multicast (ISM) VLAN
- Port/Flow/VLAN/Queue-based Bandwidth Control
- Granular Bandwidth Control down to 1 Kbps
- Three Color Marker
- Traffic Shaping

OAM
- 802.3ah Link OAM
- 802.1ag, ITU-T Y.1731* Service OAM
- Port/Flow Mirroring, RSPAN
- DHCP Auto Configuration
- sFlow

*Available in future release

xStack L3 Managed Fast Ethernet Switches

The DES-3810 Series 24 and 48-port switches are the latest additions to the D-Link xStack family of next-generation, high-end, multi-service Layer 3 switches. The DES-3810-28 provides 24 10/100 Mbps Fast Ethernet ports and 4 combo 1000Base-T/SFP Gigabit Ethernet ports. The DES-3810-52* provides 48 10/100 Mbps Fast Ethernet ports, 2 1000Base-T and 2 combo 1000Base-T/SFP Gigabit Ethernet ports. The Fast Ethernet ports allow users to connect to other LAN access switches. The combo ports provide users with a much higher level of flexibility for dedicated trunk connections between devices or core switches.

Standard and Enhanced Images
The DES-3810 Series is embedded with two different software images - Standard Image (SI) and Enhanced Image (EI). The Standard Image provides sophisticated features for campus or enterprise. It includes advanced Quality of Service (QoS), traffic shaping, 802.1Q tunneling (Q-in-Q), IPv4 routing/multicasting, Ethernet OAM, and various other security features. The Enhanced Image supports IPv6 routing, Border Gateway Protocol (BGP), and Multi Protocol Label Switching (MPLS), which is suitable for next-generation IPv6 networks or VPN/triple play applications in Metro Ethernet. In addition, the Enhanced Image also supports Switch Resource Management (SRM). This allows users to optimize the switch resources for different networking environments.

Enhanced Network Reliability
The DES-3810 Series targets enterprise/campus and customers who require a high level of network security and maximum uptime. The DES-3810-28 and DES-3810-52 both support an external redundant power supply so that continued operation is assured. They also include other features, such as 802.1D Spanning Tree (STP), 802.1w Rapid Spanning Tree (RSTP) and 802.1s Multiple Spanning Tree (MSTP), Loopback Detection (LBD), and Broadcast Storm Control, that enhance network resilience. The G.8032 Ethernet Ring Protection Switching (ERPS) function minimizes the recovery time to 50 ms. For load sharing and redundancy backup in switch cascading/server attachment configuration, the DES-3810 Series provides dynamic 802.3ad Link Aggregation Port Trunking.

Comprehensive Security
The DES-3810 Series provides users with the latest security features such as Multi-layer and Packet Content Access Control Lists (ACL), Storm Control, and IP-MAC-Port Binding (IMPB) with DHCP Snooping. The IP-MAC-Port Binding feature allows administrators to bind a source IP address with an associated MAC and also define the port number to enhance user access control. With the DHCP Snooping feature, the switch automatically learns IP/MAC pairs by snooping DHCP packets and saving them to the IMPB white list. In addition, the D-Link Safeguard Engine identifies and prioritizes "CPU interested" packets to prevent malicious traffic from interrupting normal network flows and to protect switch operation.

Identity Driven Network Policies
The DES-3810 Series supports authentication mechanisms such as 802.1X, Web-based Access Control (WAC), and MAC-based Access Control for strict access control and easy deployment. After authentication, individual policies such as VLAN membership, QoS policies, and ACL rules can be assigned to each host. In addition, the switch also supports Microsoft® NAP (Network Access Protection). NAP is a policy enforcement technology that allows customers to protect network assets from unhealthy computers by enforcing compliance with network health policies.

Traffic Management for Triple Play Services
The DES-3810 Series implements a rich set of multilayer QoS/CoS features to ensure that critical network services like VoIP, video conference, IPTV and IP surveillance are served with priority. The Three Color Marker and Traffic Shaping features guarantee the quality of these services when the network is busy. With L2/L3 Multicast support, the DES-3810 shows its ability to handle growing IPTV applications. The Host-based IGMP/MLD Snooping allows multiple multicast subscribers per physical interface and ISM VLAN sends multicast streams in a multicast VLAN to save bandwidth in the backbone network. The ISM VLAN profiles allow users to bind/replace the pre-defined multicast registration information to subscriber ports quickly and easily.

Advanced Routing
- Open Shortest Path First (OSPF)
- Border Gateway Protocol (BGP)*
- Policy-based Routing (PBR)
- Protocol Independent Multicast (PIM)*

IPv6 Features
- IPv6 Neighbor Discovery (ND)
- IPv6 Management
- IPv4/v6 Dual Stack
- IPv6 Tunneling*
- IPv6 Dynamic Routing*
- IPv6 Ready Logo Phase 2

VPN Tunnel Service
- VLAN Translation
- Selective Q-in-Q
- L2 Protocol Tunneling (L2PT)
- Label Distribution Protocol (LDP)*
- Virtual Private Wire Service (VPWS)*

xStack L3 Managed Fast Ethernet Switches

Proactive, Effective Network Management
To uphold enterprise customers' Service Level Agreements (SLA), service providers must reduce the Mean Time to Repair (MTTR) and increase service availability. Ethernet OAM features address these challenges and enable service providers to offer carrier-grade services. The DES-3810 Series supports industry-standard OAM tools, including IEEE 802.3ah, IEEE802.1ag, and ITU-T Y.1731. Connectivity Fault Management (CFM) provides tools to monitor and troubleshoot end-to-end Ethernet networks, allowing service providers to check connectivity, isolate network issues, and identify customers affected by network issues.

High Performance Routing
The DES-3810 Series supports hardware-based, wire speed L3 routing functions. For small networks, inter-VLAN routing, static routing, and Routing Information Protocol (RIP) provide an easy way to configure your L3 routing environment. For mid-to-large networks, Open Shortest Path First (OSPF) and Border Gateway Protocol Version 4 (BGPv4) are supported for better routing performance. The Policy-based Routing (PBR) allows administrators to control the direction of dynamic routing either for load balance or security reasons.

For L3 multicasting, the DES-3810 Series supports rich Protocol Independent Multicast (PIM) protocols including PIM Sparse Mode (PIM-SM), PIM Dense Mode (PIM-DM), PIM Source-Specific Multicast (PIM-SSM), and PIM Sparse-Dense mode.

Interoperable with IPv4 and IPv6
The DES-3810 Series is fully compliant with the future IPv6 networks. It supports remote IPv6 manageability from telnet, HTTP, or SNMP. It also supports the IPv6 dynamic routing protocols such as RIPng and OSPFv3. Additionally, this device supports IPv4/v6 dual stack and IPv6 tunneling functions, allowing the DES-3810 to play the role of a bridge between IPv4 and IPv6 networks.

To create secure IPv6 networks, the DES-3810 Series supports IPv6 ACL, IPv6 RADIUS, DHCPv6 Snooping, and Neighbor Discovery (ND) Snooping functions to protect the network from illegal IPv6 clients.

VPN Tunnel Service For Enterprises
The DES-3810 Series can also be used as a telecom access switch. It supports many advanced features such as VLAN translation, Selective Q-in-Q, and Virtual Private Wire Service (VPWS) that allows users to create L2 VPN tunnels through the telecom MPLS backbone. With L2 Protocol Tunneling (L2PT), the DES-3810 provides L2 transparency to business subscribers through the ISP network helping reduce IT expenses by centralizing network management.

*Available in future release

Technical Specifications		DES-3810-28
General	Interface	24 10/100 BASE-T 4 Combo 1000BASE-T/SFP
	Console Port	RJ-45
	Out-of-band Management Port	RJ-45

Performance	Switching Capacity	12.8 Gbps
	Packet Performance Rate	9.5 Mpps
	CPU	800 MHz
	Packet Buffer	1.5 MB
	Flash Memory	32 MB
	DRAM	256 MB

MTBF (Hours)	382,307 hours
Acoustic	0 dB (fanless)
Heat Dissipation	79.85 BTU/h
Power Input	100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply
Optional Redundant Power Supply	DPS-200
Max Power Consumption	23.4 watts
Dimensions (W x D x H)	441 x 260 x 44 mm
Weight	3.1 kg
Ventilation	Fanless
Operating Temperature	0 to 50˚ C
Storage Temperature	-40 to 70˚ C
Operating Humidity	10% to 90% non-condensing
Storage Humidity	5% to 90% RH
Emission (EMI)	FCC Class A, CE, C-Tick, VCCI
Safety	cUL, CB
Certifications	IPv6 Ready Logo Phase 2

Software Features

Standard Image Features

Stackability
- Physical Stacking*
  - Up to 1 Gbps Stacking Bandwidth
  - Up to 8 units per stack
- Virtual Stacking
  - D-Link Single IP Management (SIM)
  - Up to 32 units per Virtual Stack

L2 Features
- MAC Address Table: 16K
- Flow Control
  - 802.3x Flow Control
  - HOL Blocking Prevention
- Jumbo Frames up to 10,240 bytes
- Spanning Tree Protocols
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
  - BPDU Filtering
  - Root Restriction
- Loopback Detection
- Ethernet Ring Protection Switching (ERPS)
- 802.3ad Link Aggregation
  - Max. 14 groups per device / 8 ports per group
- Port Mirroring
  - One-to-One
  - Many-to-One
  - Flow-based
  - RSPAN
- L2 Protocol Tunneling

L2 Multicasting
- IGMP Snooping
  - IGMP v1/v2/v3 Snooping
  - Supports 1024 IGMP groups
  - Port/Host-based Fast Leave
- MLD Snooping
  - MLD v1/v2 Snooping
  - Supports 1024 groups
  - Port/Host-based Fast Leave
- IGMP/MLD Proxy Reporting

VLAN
- VLAN Group
  - Max. 4K VLAN groups
- GVRP
  - Supports 4K dynamic VLAN groups
- 802.1Q Tagged VLAN
- Port-based VLAN
- 802.1v Protocol VLAN
- Double VLAN (Q-in-Q)
  - Port-based Q-in-Q
  - Selective Q-in-Q
- VLAN Translation for single/double tagged packets
- Voice VLAN
- MAC-based VLAN
- Subnet-based VLAN
- ISM VLAN
- VLAN Trunking

- Private VLAN

L3 Features
- Max. 256 IPv4 Interfaces, 32 IPv6 Interfaces
- ARP Proxy
- IGMP/MLD Proxy
- VRRP
- IPv6 Tunneling*
  - Static
  - ISATAP
  - GRE
  - 6to4
- IPv6 Neighbor Discovery (ND)

L3 Routing
- Up to 7,286 IPv4 external routes
- Up to 1,821 IPv6 external routes*
- Up to 3,575 IPv4 host routes
- Up to 1,821 IPv6 host routes*
- 256 static routing entries for IPv4, 128 entries for IPv6*
- Policy-based Routing
- RIP v1/v2
- OSPF
  - Supports OSPF v2
  - OSPF Passive Interface
  - Stub/NSSA Area
  - OSPF Equal Cost Route

L3 Multicasting
- Up to 1,024 hardware IPv4 multicast groups*
- Up to 256 hardware IPv6 multicast groups*
- IGMP Filtering
  - Up to 60 IGMP filtering profiles, 128 ranges per profile
- IGMP v1,v2,v3*
- DVMRP v3*
- PIM-DM*
- PIM-SM*
- PIM-SSM*
- PIM Sparse-Dense Mode*

QoS (Quality of Service)
- IEEE 802.1p
- DSCP
- 8 Queues per Port
- Queue Handling
  - Strict Priority
  - Smoothed Deficit Weighted Round Robin (SDWRR)
  - Strict + SDWRR
- CoS based on
  - Switch Port
  - VLAN ID
  - 802.1p Priority Queues
  - MAC Address
  - IPv4/v6 Address
  - DSCP
  - Protocol Type
  - IPv6 Traffic Class
  - IPv6 Flow Label
  - TCP/UDP Port
  - User-defined Packet Content

- Supports Following Actions for Flows
  - Remark 802.1p Priority Tag
  - Remark TOS/DSCP Tag
  - Bandwidth Control
  - Flow Statistics
- Three Color Marker
  - trTCM
  - srTCM
- Bandwidth Control
  - Port-based (Ingress/Egress, Min. Granularity 64 Kbps)
  - Flow-based (Ingress/Egress, Min. Granularity 1 Kbps)
  - Per Egress Queue Bandwidth Control (Min. Granularity 64 Kbps)
- Time-based QoS

Access Control List (ACL)
- Up to 1,024 Ingress Access Rules
- Up to 512 Egress Access Rules*
- ACL based on
  - 802.1p Priority
  - VLAN ID
  - MAC Address
  - Ether Type
  - IPv4/v6 Address
  - DSCP
  - Protocol Type
  - TCP/UDP Port Number
  - IPv6 Traffic Class
  - IPv6 Flow Label
  - User-defined Packet Content
- ACL Statistics
- Time-based ACL
- CPU Interface Filtering
- SSH v2
- SSL v1/v2/v3
- Port Security
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- IP-MAC-Port Binding
  - ARP Packet Inspection
  - IP Packet Inspection
  - DHCP Snooping*
  - IPv6 ND Snooping*
  - Supports up to 500 address binding entries per device
- D-Link Safeguard Engine
- NetBIOS/NetBEUI Filtering
- DHCP Server Screening
- BPDU Attack Protection
- ARP Spoofing Prevention
- L3 Control Packet Filtering

AAA
- 802.1X
  - Port-based Access Control
  - Host-based Access Control
  - Authentication Database Failover
  - Identity-Driven Policy (VLAN, ACL*, or QoS) assignment
- MAC-based Access Control (MAC)
  - Port-based Access Control

*Available in future release

- Host-based Access Control
- Authentication Database Failover
- Identity-driven Policy (VLAN, ACL*, or QoS) assignment
- Japan Web-based Access Control (Host-based JWAC)
- Compound Authentication
- Guest VLAN
- Microsoft® NAP
  - 802.1X NAP support
  - DHCP NAP support
- RADIUS
- TACACS
- XTACACS
- TACACS+
- RADIUS Accounting
- 3 Level User Account
- Trusted Host

Operation, Administration & Management (OAM)
- Loopback Diagnostics
- Cable Diagnostics
- 802.3ah Ethernet Link OAM
- D-Link Unidirectional Link Detection (DULD)*
- Broadcast/Multicast/Unicast Storm Control
- Dying Gasp
- 802.1ag Connectivity Fault Management (CFM)
- ITU-T Y.1731*

Green Features
- Power Saving function on Gigabit ports
- Power Saving by Link Status
- Power Saving by Cable Length

Management
- Web-based GUI (Supports IPv4/IPv6)
- Command Line Interface (CLI)
- Telnet Server(Supports IPv4/IPv6)
- Telnet Client(Supports IPv4/IPv6)
- TFTP Client(Supports IPv4/IPv6)
- FTP Client
- Remote Copy Protocol (RCP)
- PPPoE Circuit-ID Tag Insertion
- ZModem
- SNMP v1/v2c/v3
  - SNMP over IPv6
- SNMP Traps
- System Log
- SMTP
- RMON v1
  - Supports 1,2,3,9 groups

- RMON v2
  - Supports ProbeConfig Group
- sFlow
- LLDP
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay (Support IPv4/v6*)
- DHCP Relay Option 60, 61, 82
- DHCP Server
- Flash File System for multiple images and configurations
- CPU Monitoring
- DNS Relay
- SNTP
- Password Recovery
- Password Encryption
- Microsoft® NLB (Network Load Balancing)
- Ping (Supports IPv4/v6)
- Traceroute (Supports IPv4/v6)

MIB
- RFC1065, 1066, 1155, 1156, 2578 MIB Structure
- RFC1212 Concise MIB Definitions
- RFC1213 MIB II
- RFC1215 MIB Traps Convention
- RFC1493 Bridge MIB
- RFC1157, 2571-2576 SNMP MIB
- RFC 1901-1908, 1442, 2578 SNMPv2 MIB
- RFC1757, 2819 RMON MIB
- RFC2021 RMONv2 MIB
- RFC1398, 1643, 1650, 2358, 2665 Ether-like MIB
- RFC2674, 4363 802.1p MIB
- RFC2233, 2863 Interface Group MIB
- RFC2618 RADIUS Authentication Client MIB
- RFC2620 RADIUS Accounting Client MIB
- RFC2925 Ping & Traceroute MIB
- D-Link Private MIB

Standard Compliance
- RFC768 UDP
- RFC791 IP
- RFC792 ICMPv4
- RFC2463, 4443 ICMPv6
- RFC793 TCP
- RFC826 ARP
- RFC1321, 2284, 2865, 2716, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC2571 SNMP Framework
- RFC2572 SNMP Message Processing and Dispatching

- RFC2573 SNMP Applications
- RFC2574 User-based Security Model for SNMPv3
- RFC1981 Path MTU Discovery for IPv6
- RFC2460 IPv6
- RFC2461, 4861 Neighbor Discovery for IPv6
- RFC2462, 4862 IPv6 Stateless Address Auto-configuration
- RFC2464 IPv6 over Ethernet and definition
- RFC3513 IPv6 Addressing Architecture
- RFC2893 IPv4/IPv6 dual stack function
- IPv6 Ready Logo Phase 2 router mode

Enhanced Image Features

Advanced L3 Routing
- BGP v4*

IPv6 Dynamic Routing
- RIPng*
- OSPFv3*

MPLS
- LDP*
- MPLS Label Management*
- VPWS*

Management
- Switch Resource Management (SRM)*

*Available in future release

Ordering Information

DES-3810-28/SI   24 10/100 ports, 4 combo 10/100/1000/SFP ports. Standard Image is embedded.

DES-3810-28/EI*   24 10/100 ports, 4 combo 10/100/1000/SFP ports. Enhanced Image is embedded.

DES-3810-52/SI*   48 10/100 ports, 2 combo 10/100/1000/SFP ports, 2 SFP ports. Standard Image is embedded.

DES-3810-52/EI*   48 10/100 ports, 2 combo 10/100/1000/SFP ports, 2 SFP ports. Enhanced Image is embedded.

Optional Products

Optional SFP Transceivers

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

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

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

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

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

DEM-211   SFP transceiver, 100BASE-FX standard, up to 2 km multi-mode fiber cable distance, 3.3 V operating voltage

DEM-210   SFP transceiver, 100BASE-FX standard, up to 15 km single-mode fiber Cable distance, 3.3 V operating voltage

Optional WDM SFP Transceivers

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

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

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

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

Optional Redundant Power Supply System

DPS-200   60 watts redundant power supply

DPS-800   2-slot redundant power supply chassis

DPS-900   8-slot redundant power supply chassis

Optional Management Software

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

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

DV-601S*   E2ES Management Module for D-View 6.0 Standard Edition

DV-601P*   E2ES Management Module for D-View 6.0 Professional Edition

Optional Accessories

DRE-KIT019   Generic wall mount ear

*Available in future release