Flexible Port Density
- 8, 16, or 24 10/100BASE-TX or 24 100BASE-FX Ports
- 2 or 4 Combo 1000BASE-T/SFP Ports
- 9" or 19" Rack-mount Width

L2 Features
- 4K VLAN Group
- Asymmetric VLAN
- Double VLAN (Q-in-Q)
- ISM VLAN
- Spanning Tree Protocols: 802.1D-2004 Edition, 802.1w and 802.1s
- 802.3ad Link Aggregation

Security
- Port Security
- Access Control List (ACL)
- 802.1X Port-based/Host-based Access Control
- 802.1X Guest VLAN
- SSH/SSL
- D-Link Safeguard Engine
- IP-MAC-Port Binding

Traffic Monitoring & Bandwidth Control
- Port Mirroring
- Bandwidth Control
- Broadcast/Multicast/Unicast Storm Control

Management
- Web-based GUI
- Command Line Interface (CLI)
- Telnet Client/Server
- SNMP v1, v2c, v3 & RMON v1, v2
- D-Link Single IP Management (SIM)
- Network Load Balancing (NLB)
- RADIUS/TACACS+ Authentication for Management Access
- Link Layer Discovery Protocol (LLDP)

Operations Administration Maintenance (OAM)
- 802.3ah Ethernet Link OAM
- 802.1ag Connectivity Fault Management (CFM)
- 802.3ah D-Link Extension: D-Link Unidirectional Link Detection (DULD)[1]

[1] Available in a future release

Layer 2 Management Switches

The DES-3200 Series is a member of D-Link's Layer 2 xStack Managed Switch family designed for the Metro ETTX, FTTX, and Enterprise market. The DES-3200 Series provides 8/16/24 100Mbps Fast Ethernet connections plus 2/4 combo Gigabit/SFP ports. The DES-3200-10/18 comes in a 9-inch desktop size and incorporates a fanless design suitable for ETTH deployment. The DES-3200-28/28F provides copper or fiber connections on Fast Ethernet, an advantage when used for Metro Ethernet applications. It also offers the beneficial design of 4 Gigabit/SFP Combo ports which provide up to 4Gbps uplink bandwidth or dual Ethernet ring topology support. The DES-3200-28F facilitates up to 20 km connectivity for Metro Ethernet applications.

Security & Availability
The DES-3200 series supports 802.1X Port-based/MAC-based Access Control, Guest VLAN, and RADIUS and TACAS+ Authentication for strict access control over the network. The IP-MAC-Port Binding feature allows administrators to bind a source IP address with an associated MAC for a defined port number to enhance user access control. Furthermore with the DHCP Snooping feature, the switch automatically understands the IP/MAC pairs by snooping DHCP packets and saving them to the IMPB white list. These features play a significant role in keeping the network secure and auditable. The built-in D-Link Safeguard Engine identifies and prioritizes "CPU interested" packets to prevent malicious traffic from interrupting normal network flows and protects switch operation. In addition, the Access Control List (ACL) feature enhances the network security and switch performance.

Resilience/Performance Enhancement
For mission critical environments the DES-3200 series supports 802.1D-2004 edition, 802.1w and 802.1s Spanning Tree Protocols (STP). STP allows you to configure the switch with a redundant backup bridge path, so transmission and reception of packets can be guaranteed in event of any failed switch on the network. The switches also support 802.3ad Link Aggregation, enabling you to group multiple ports in parallel to form a single port, increasing bandwidth and redundancy for higher availability. For Quality of Service (QoS), the switches support 802.1p. This standard is a mechanism that allows real-time traffic classification into 8 priority levels mapped to 4 queues. Packet classification is based on TOS, DSCP, MAC Addresses, IP Addresses, VLAN ID, TCP/UDP port number, protocol type and user defined packet content, which enables flexible configuration especially for real-time streaming multimedia applications such as voice over IP.

Traffic & Bandwidth Control
The bandwidth control feature allows network administrators to define the throughput levels for each port in order to manage bandwidth. It also provides fine granularity to define the ingress/egress traffic limits down to 62.5 kbps segments. The switches also support the Broadcast Storm Control feature which minimizes the chance of a virus attack within the network. Port Mirroring helps administrators facilitate traffic diagnostics or track switch performance and alter if it is necessary. Q-in-Q, also known as VLAN stacking, is a powerful yet simple and cost-effective solution which can be used to provide multiple virtual connections and access to multiple services available over the Metro Ethernet.

Multicast Applications
The DES-3200 series provides IGMP Snooping to prune multicast traffic and to optimize network performance. The MLD snooping feature minimizes multicast IPv6 packets at the port level to conserve network bandwidth.

Management Capabilities
The DES-3200 series supports standard management protocols such as SNMP, RMON, Telnet, SSH/SSL security authentication and DHCP Relay Option 82. A web-based GUI is also supported for user-friendly interface and easy management. DHCP Auto-Configuration is an enhanced management feature that allows administrators to pre-set configuration and save them to a TFTP server. Individual switches can then get IP addresses from the server for booting up and loading the pre-set configuration. The Link Layer Discovery Protocol (LLDP) allows a network device to advertise its identity and capabilities on the local network, which helps businesses better manage their network topology. Each port on the switch supports the Cable Diagnostics feature that helps to detect cable-related information such as cable length status or cable functionality. D-Link Single IP Management (SIM) simplifies and speeds up management tasks, allowing multiple switches to be configured, monitored and maintained from any workstation running a web browser through one unique IP address. The DES-3200 Series also works with D-Link's D-View 6.0 software. 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. D-View 6.0 provides a useful set of tools for network administrators who want to effectively manage device configurations, fault tolerance, performance, and security.

Technical Specifications		DES-3200-10	DES-3200-18	DES-3200-26	DES-3200-28	DES-3200-28F
Specification Category	Size	9-inch Desktop Size, 1U Height	9-inch Desktop Size, 1U Height	19-inch Standard Rack-Mount Width, 1U Height	19-inch Standard Rack-Mount Width, 1U Height	19-inch Standard Rack-Mount Width, 1U Height
	Interface	8 10/100BASE-TX	16 10/100BASE-TX	24 10/100BASE-TX	24 100BASE-TX	24 100BASE-FX
		2 Combo 1000BASE-T/SFP	2 Combo 1000BASE-T/SFP	2 Combo 1000BASE-T/SFP	4 Combo 1000BASE-T/SFP	4 Combo 1000BASE-T/SFP
	Console Port	RS-232 DB-9 Console Port				
Specification Category	Switching Capacity	5.6 Gbps	7.2 Gbps	8.8 Gbps	12.8 Gbps	12.8 Gbps
	63-Byte Packet Forwarding Rate	4.2 Mpps	5.4 Mpps	6.6 Mpps	9.5 Mpps	9.5 Mpps
	MAC Address Table-Size	8K Entries	8K Entries	8K Entries	8K Entries	8K Entries
	SDRAM for CPU	128 MB	128 MB	128 MB	128 MB	128 MB
	Packet Buffer	384 KB	384 KB	384 KB	384 KB	384 KB
	Flash Memory	16 MB	16 MB	16 MB	16 MB	16 MB
	Jumbo Frame (2048 Bytes Tagged, 2044 Bytes Un-Tagged)	√	√	√	√	√
Specification Category	Power (Per Device)	√	√	√	√	√
	Console (Per Device)	√	√	√	√	√
	Link/Activity/Speed (Per Port)	√	√	√	√	√
MTBF (Hours)		873,750 hours	743,115 hours	566,381 hours	639,525 hours	447,268 hours
Acoustic		0dB	0dB	0dB	0dB	40.2dB
Heat Dissipation		43.3 BTU per hour	45 BTU per hour	47 BTU per hour	62.7 BTU per hour	159.3 BTU per hour
Power Input		100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply				
Max Power Consumption		12.7W	13.2W	13.8W	18.4W	46.7W
Dimensions		228.5 (W) x 180 (D) x 44 (H) mm		441 (W) x 207 (D) x 44 (H) mm		
Ventilation DC Fan		Fanless	Fanless	Fanless	Fanless	1DC Fan
Operating Temperature		0˚ to 40˚ C (32˚ to 104˚ F)				
Storage Temperature		-40˚ to 70˚ C (-40˚ to 158˚ F)				
Operating Humidity		5% to 95% non-condensing				
EMI		FCC Class A, CE Class A, VCCI Class A, IC, C-Tick				
Safety		UL/cUL, CB				

Layer 2 Management Switches

Software Features

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

L2 Features
- MAC Address Table: 8k
- Flow Control:
  - 802.3x Flow Control
  - HoL Blocking Prevention
- Jumbo Frames up to 2048 bytes
- Spanning Tree Protocols:
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
  - BPDU Filtering
  - Root Restriction
- L2 Protocol Tunneling
- Loopback Detection (LBD)
- 802.3ad Link Aggregation:
  - DES-3200-10: Max. 5 groups, 8 ports per group
  - DES-3200-18: Max. 9 groups, 8 ports per group
  - DES-3200-28/28F: Max. 14 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 Multicasting
- IGMP Snooping:
  - IGMP v1/v2 Snooping, IGMP v3 Awareness
  - Supports 1K groups
  - Port-based IGMP Snooping Fast Leave
- Limited IP Multicasting:
  - Up to 24 IGMP filtering profiles, 128 ranges per profile
- MLD Snooping:
  - MLD v1/v2 Snooping, MLD v2 Awareness
  - Supports 1K groups
- IGMP Authentication

L3 Features
- Gratuitous ARP

VLAN
- 802.1Q Tagged VLAN
- 802.1v Protocol VLAN
- VLAN Group:
  - Max. 4K VLAN
- Port-based VLAN
- MAC-based VLAN
- GVRP:
  - Max. 255 dynamic VLANs
- VLAN Trunking
- Asymmetric VLAN

- Double VLAN (Q-in-Q):
  - Port-based Q-in-Q
  - Selective Q-in-Q
- ISM VLAN
- VLAN Translation

Quality of Service (QoS)
- Bandwidth Control:
  - Port-based (Ingress/Egress, min. granularity 62.5kbps)
  - Flow-based (Ingress, min. granularity 62.5kbps)
  - Per egress queue bandwidth control
- 4 queues per port
- 802.1p
- Queue Handling:
  - Strict Priority
  - Weighted Round Robin (WRR)
- CoS Based on:
  - Switch Port
  - VLAN ID
  - 802.1p Priority Queues
  - MAC Address
  - Ether Type
  - IP Address
  - TOS
  - DSCP
  - Protocol Type
  - TCP/UDP Port
  - User-defined Packet Content
- Time-based QoS
- Supports the following actions for flows:
  - Remark 802.1p Priority Tag

Access Control List (ACL)
- Up to 512 access rules
- ACL based on:
  - 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
  - Switch Port
- Time-based ACL
- ACL Statistics
- CPU Interface Filtering

Security
- SSH v2
- SSL v1/v2/v3
- Port Security:

up to 64 MAC addresses per port
- Broadcast/Multicast/Unicast Storm Control
- Traffic Segmentation
- IP-MAC-Port Binding (IMPB):
  - IP Packet Inspection
  - ARP Packet Inspection
  - DHCP Snooping
  - Supports 500 address binding entries per device
- D-Link Safeguard Engine
- DoS Attack Prevention
- ARP Spoofing Prevention
- BPDU Attack Protection
- DHCP Server Screening

AAA
- 802.1X:
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
  - Identity-driven security policy assignment: QOS, VLAN
- Guest VLAN
- RADIUS Accounting
- RADIUS and TACACS+ Authentication for switch access
- Two level User Account
- MAC-based Access Control (MAC)
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
  - Authentication Database Failover
  - Identity-driven security policy assignment: QoS, ACL, VLAN
- Microsoft® NAP (IPv4/v6):
  - Supports 802.1x NAP
  - Supports DHCP NAP

Management
- Web-based GUI (Supports IPv4/v6)
- Command Line Interface (CLI)
- Telnet Server/Client (Supports IPv4/v6)
- TFTP Client (Supports IPv4/v6)
- XModem
- ZModem
- SNMP v1/v2c/v3:
  - SNMP over IPv6
- SNMP Traps
- RMON v1:
  - Supports 1,2,3,9 groups
- RMON v2:
  - Supports ProbeConfig group
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay

Layer 2 Management Switches

- DHCP Relay Option 12
- DHCP Relay Option 82
- PPPoE Circuit-ID Tag Insertion
- System Log
- Dual Image
- CPU Monitoring
- SNTP
- LLDP
- Debug Command
- Password Encryption
- SMTP
- Network Load Balancing (NLB)

OAM
- Cable Diagnostics
- 802.3ah Ethernet Link OAM
- 802.1ag Connectivity Fault Management (CFM)
- 802.3ah D-Link Extension: D-Link Unidirectional Link Detection (DULD)[1]

MIB
- RFC 1213 MIB II
- RFC 4188 Bridge MIB
- RFC 1157, 2571-2576 SNMP MIB
- RFC 1907 SNMPv2 MIB
- RFC 1757, 2819 RMON MIB

- RFC 2021 RMONv2 MIB
- RFC 1398, 1643, 1650, 2358, 2665 Ether-like MIB
- RFC 2674 802.1p MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC 2620 RADIUS Accounting Client MIB
- RFC 2925 PING & TRACEROUTE MIB
- RFC 2674, 4363 802.1p MIB
- RFC 1215 MIB Traps Convention

IETF® Standard
- RFC 768 UDP
- RFC 791 IP
- RFC 792, 2463, 4443 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 3513, 4291, IPv6 Addressing Architecture
- RFC 2893, 4213 IPv4/IPv6 dual stack function
- RFC 2463, 4443 ICMPv6
- RFC 2462, 4862 IPv6 Stateless Address Auto Configuration
- RFC 2464 IPv6 Ethernet and definition
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2460 IPv6
- RFC 2461, 4861 Neighbor Discovery for IPv6
- RFC 783 TFTP

- RFC 854 Telnet
- RFC 951, 1542 BootP
- RFC 2068 HTTP
- RFC 1492 TACACS
- RFC 2866 RADIUS Accounting
- RFC 2474, 3260 DiffServ
- RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC 2571, 2572, 2573, 2574, SNMP

Certifications
- IPv6 Ready Logo
- MEF 21 Certification

Optional Products

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 SFP Transceivers

DEM-310GT	1000BASE-LX, Single-mode, 10 km
DEM-311GT	1000BASE-SX, Multi-mode, 550 km
DEM-312GT2	1000BASE-SX, Multi-mode, 2 km
DEM-314GT	1000BASE-LX, Single-mode, 50 km
DEM-315GT	1000BASE-LX, Single-mode, 80 km
DEM-210	100BASE-LX, Single-mode, 15 km[2]
DEM-211	100BASE-LX, Multi-mode, 2 km[2]

Optional WDM SFP Transceivers

DEM-330T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 10 km
DEM-330R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 10 km
DEM-331T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 40 km
DEM-331R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 40 km
DEM-220T	100BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 20 km[2]
DEM-220R	100BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 20 km[2]

[1] Available in a future release
[2] DES-3200-28F port 1-24 can use only DEM-210, DEM-211, DEM-220T and DEM-220R