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

Surge Protection
- All Ethernet ports have 6 KV surge protection [1]

Friendly Hardware Design
- "All interfaces in the front" design [2]
- External alarm for event detection and alarm actions [2]

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

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

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

Management
- 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)[3]

[1] Available on DES-3200-10/18/26/28 B1 versions
[2] Available on DES-3200-28/ME
[3] 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 10/100 Mbps 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 and DES-3200-28/ME provide copper or fiber connections on Fast Ethernet, an advantage when used for Metro Ethernet applications. It also offers the beneficial design of 2/4 Gigabit/SFP Combo ports which provide up to 4 Gbps 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/Host-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 the event of any failed switch on the network. The switches also support 802.1AX and 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 make changes if 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	
Hardware Version		A1	B1	A1	B1
Interface	Size	9-inch Desktop Size, 1U Height	9-inch Desktop Size, 1U Height	9-inch Desktop Size, 1U Height	9-inch Desktop Size, 1U Height
	Interface	8 10/100BASE-TX 2 Combo 1000BASE-T/SFP	8 10/100BASE-TX 1 SFP 1 Combo 1000BASE-T/SFP	16 10/100BASE-TX 2 Combo 1000BASE-T/SFP	16 10/100BASE-TX 1 SFP 1 Combo 1000BASE-T/SFP
	Console Port	RS-232	RJ-45	RS-232	RJ-45
Performance	Switching Capacity	5.6 Gbps	5.6 Gbps	7.2 Gbps	7.2 Gbps
	64-Byte Packet Forwarding Rate	4.2 Mpps	4.2 Mpps	5.4 Mpps	5.4 Mpps
	MAC Address Table-Size	8K Entries	8K Entries	8K Entries	8K Entries
	SDRAM for CPU	128 MB	128 MB	128 MB	128 MB
	Packet Buffer	384 KB	384 KB	384 KB	384 KB
	Flash Memory	16 MB	16 MB	16 MB	16 MB
	Jumbo Frame (2048 Bytes Tagged, 2044 Bytes Un-Tagged)	✓	✓	✓	✓
LEDs	Power (Per Device)	✓	✓	✓	✓
	Console (Per Device)	✓	✓	✓	✓
	Link/Activity/Speed (Per Port)	✓	✓	✓	✓
Physical and Environmental	MTBF (Hours)	873,750 hours	804,462 hours	743.115 hours	764,596 hours
	Acoustic	0 dB	0 dB	0 dB	0 dB
	Heat Dissipation	43.3 BTU per hour	31.3 BTU per hour	45.0 BTU per hour	36.4 BTU per hour
	Power Input	100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply			
	Max Power Consumption	12.7 watts	9.2 watts	13.2 watts	10.7 watts
	Dimensions (W x D x H)	228.5 x 180 x 44 mm	228.5 x 195 x 44 mm	228.5 x 180 x 44 mm	228.5 x 195 x 44 mm
	Ventilation	Fanless	Fanless	Fanless	Fanless
	Power Surge Protection	-	All Ethernet ports support IEC61000-4-5 10/700us 6 KV surge protection	-	All Ethernet ports support IEC61000-4-5 10/700us 6 KV surge protection
	Operating Temperature	0 to 40 °C (32 to 104 °F)	0 to 50 °C (32 to 122 °F)	0 to 40 °C (32 to 104 °F)	0 to 50 °C (32 to 122 °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	CE LVD, UL/cUL, CB			
	3rd Party Certifications	MEF 21, IPv6 Ready Logo			

Technical Specifications		DES-3200-26		DES-3200-28	
Hardware Version		A1	B1	A1	B1
Interface	Size	19-inch Standard Rack-Mount Width, 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	24 10/100BASE-TX 2 Combo 1000BASE-T/SFP	24 10/100BASE-TX 2 Combo 1000BASE-T/SFP	24 10/100BASE-TX 2 SFP 2 Combo 1000BASE-T/SFP	24 10/100BASE-TX 2 SFP 2 Combo 1000BASE-T/SFP
	Console Port	RS-232	RJ-45	RS-232	RJ-45
Performance	Switching Capacity	8.8 Gbps	8.8 Gbps	12.8 Gbps	12.8 Gbps
	63-Byte Packet Forwarding Rate	6.6 Mpps	6.6 Mpps	9.5 Mpps	9.5 Mpps
	MAC Address Table-Size	8K Entries	8K Entries	8K Entries	8K Entries
	SDRAM for CPU	128 MB	128 MB	128 MB	128 MB
	Packet Buffer	384 KB	384 KB	384 KB	384 KB
	Flash Memory	16 MB	16 MB	16 MB	16 MB
	Jumbo Frame (2048 Bytes Tagged, 2044 Bytes Un-Tagged)	✓	✓	✓	✓
LEDs	Power (Per Device)	✓	✓	✓	✓
	Console (Per Device)	✓	✓	✓	✓
	Link/Activity/Speed (Per Port)	✓	✓	✓	✓
Physical and Environmental	MTBF (Hours)	566,381 hours	697,861 hours	668,867 hours	668,867 hours
	Acoustic	0 dB	0 dB	0 dB	0 dB
	Heat Dissipation	47.0 BTU per hour	46.3 BTU per hour	48.4 BTU per hour	48.4 BTU per hour
	Power Input	100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply			
	Max Power Consumption	13.8 watts	13.6 watts	18.4 watts	14.2 watts
	Dimensions (W x D x H)	441 x 207 x 44 mm			
	Ventilation	Fanless	Fanless	Fanless	Fanless
	Power Surge Protection	-	All Ethernet ports support IEC61000-4-5 10/700us 6 KV surge protection	-	All Ethernet ports support IEC61000-4-5 10/700us 6 KV surge protection
	Operating Temperature	0 to 40 ˚C (32 to 104 ˚F)	0 to 50 ˚C (32 to 122 ˚F)	0 to 40 ˚C (32 to 104 ˚F)	0 to 50 ˚C (32 to 122 ˚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	CE LVD, UL/cUL, CB			
	3rd Party Certifications	MEF 21, IPv6 Ready Logo			

Technical Specifications		DES-3200-28F	DES-3200-28/ME
Hardware Version		A1	A1
Specification Category	Size	19-inch Standard Rack-Mount Width, 1U Height	19-inch Standard Rack-Mount Width, 1U Height
	Interface	24 100BASE-FX / 4 Combo 1000BASE-T/SFP	24 10/100BASE-TX / 4 Combo 1000BASE-T/SFP
	Console Port	RS-232	RS-232
Specification Category	Switching Capacity	12.8 Gbps	
	64-Byte Packet Forwarding Rate	9.5 Mpps	
	MAC Address Table-Size	8K Entries	
	SDRAM for CPU	128 MB	
	Packet Buffer	384 KB	
	Flash Memory	16 MB	
	Jumbo Frame (2048 Bytes Tagged, 2044 Bytes Un-Tagged)	✓	
LEDs	Power (Per Device)	✓	
	Console (Per Device)	✓	
	Link/Activity/Speed (Per Port)	✓	
Physical and Environmental	MTBF (Hours)	450,923 hours	550,994 hours
	Acoustic	40.2 dB	0 dB
	Heat Dissipation	159.3 BTU per hour	47.0 BTU per hour
	Power Input	100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply	
	Max Power Consumption	46.7 watts	13.8 watts
	Dimensions (W x D x H)	441 x 207 x 44 mm	441 x 207 x 44 mm
	Ventilation	Fanless	Fanless
	Power Surge Protection	-	-
	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	CE Class A
	Safety	CE LVD, UL/cUL, CB	CE LVD
	3rd Party Certifications	MEF 21, IPv6 Ready Logo	

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
  - 802.1Q-2005 MSTP
  - BPDU Filtering
  - Root Restriction
- Loopback Detection
- Link Aggregation:
  - Compliant with 802.1AX and 802.3ad
  - 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 Protocol Tunneling

L2 Multicasting
- IGMP Snooping:
  - IGMP v1/v2 Snooping, IGMP v3 awareness
  - Supports 1K groups
  - Port/Host-based IGMP Snooping Fast Leave
- Limited IP Multicasting:
  - Up to 24 IGMP filtering profiles, 128 ranges per profile
- MLD Snooping:
  - MLD v1, MLD v2 awareness
  - Supports 1K groups
- IGMP Authentication

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

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

L3 Features
- Gratuitous ARP

Quality of Service (QoS)
- Bandwidth Control:
  - Port-based (Ingress/Egress, min. granularity 62.5kbps)
  - Flow-based (Ingress, min. granularity 62.5 kbps)
  - Per egress queue bandwidth control
- 4 queues per port
- DSCP
- 802.1p
- Queue Handling:
  - Strict Priority
  - Weighted Round Robin (WRR)
  - Strict + WRR [4]
- CoS Based on:
  - Switch Port
  - VLAN ID
  - 802.1p Priority Queues
  - MAC Address
  - Ether Type
  - IPv4/v6 Address
  - IPv6 Traffic Class
  - IPv6 Flow Label
  - 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
  - Remark ToS/DSCP Tag
  - Bandwidth Control
  - Flow Statistics

Access Control List (ACL)
- Up to 512 ingress access rules
- ACL based on:
  - Switch Port
  - VLAN ID
  - 802.1p Priority Queues
  - MAC Address
  - Ether Type
  - IPv4/v6 Address
  - IPv6 Traffic Class
  - IPv6 Flow Label
  - ToS
  - DSCP

  - Protocol Type
  - TCP/UDP Port
  - User Defined Packet Content
- 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):
  - ARP Inspection
  - IP Inspection
  - DHCP Snooping
- D-Link Safeguard Engine
- DHCP Server Screening
- DHCP Client Filtering
- DoS Attack Prevention
- ARP Spoofing Prevention
- BPDU Attack Protection

AAA
- 802.1X:
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
  - Identity-driven security policy assignment: QoS, VLAN
- 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
- Guest VLAN
- RADIUS
- TACACS+
- XTACACS+
- Trusted Host
- RADIUS Accounting
- Two-level User Account

Management
- Web-based GUI (Supports IPv4/v6)
- Command Line Interface (CLI)
- Telnet Server/Client (Supports IPv4/v6)

Layer 2 Management Switches

- TFTP Client (Supports IPv4/v6)
- ZModem
- SNMP v1/v2c/v3
- SNMP Traps
- System Log
- RMON v1:
  - Supports 1,2,3,9 groups
- RMON v2:
  - Supports ProbeConfig group
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay
- DHCP Relay Option 12
- DHCP Relay Option 82
- PPPoE Circuit-ID Tag Insertion
- Dual Image
- CPU Monitoring
- SNTP
- LLDP
- Debug Command
- Password Encryption
- SMTP
- Ping (Supports IPv4/v6)
- Traceroute (Supports IPv4)
- Command Logging
- ICMPv6
- Microsoft® NLB (Network Load Balancing) Support

OAM
- Cable Diagnostics
- 802.3ah Ethernet Link OAM
- Dying Gasp
- 802.1ag Connectivity Fault Management (CFM)
- 802.3ah D-Link Extension: D-Link Unidirectional Link Detection (DULD) [4]

MIB
- RFC 1065, 1066, 1155, 1156, 2578 MIB Structure
- RFC 1157, 2571-2576 SNMP MIB
- RFC 1212 Concise MIB Definitions
- RFC 1213 MIB II
- RFC 1215 MIB Traps Convention
- RFC 1398, 1643, 1650, 2358, 2665 Ether-like MIB
- RFC 1493 Bridge MIB
- RFC 1757, 2819 RMON MIB
- RFC 1907 SNMPv2 MIB
- RFC 2021 RMONv2 MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC 2620 RADIUS Accounting Client MIB
- RFC 2674, 4363 802.1p MIB
- RFC 2925 PING & TRACEROUTE MIB
- RFC 4188 Bridge MIB

IETF® Standard
- RFC 768 UDP

- RFC 783 TFTP
- RFC 791 IP
- RFC 792, 2463, 4443 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet
- RFC 951, 1542 BootP
- RFC 1321, 2284, 2865, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC 1492 TACACS
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2068 HTTP
- RFC 2460 IPv6
- RFC 2461, 4861 Neighbor Discovery for IPv6
- RFC 2462, 4862 IPv6 Stateless Address Auto Configuration
- RFC 2463, 4443 ICMPv6
- RFC 2464 IPv6 Ethernet and definition
- RFC 2474, 3260 Definition of the DS field in the IPv4 and IPv6 Headers
- RFC2544 Benchmarking Methodology for Network Interconnect Devices
- RFC 2571, 2572, 2573, 2574 SNMP
- RFC 2866 RADIUS Accounting
- RFC 2893, 4213 IPv4/IPv6 dual stack function
- RFC 3513, 4291, IPv6 Addressing Architecture

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 m
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-FX, Single-mode, 15 km [5]
DEM-211	100BASE-FX, Multi-mode, 2 km [5]

Optional WDM SFP Transceivers

DEM-330T	1000BASE-LX, Wavelength Tx: 1550 nm Rx: 1310 nm, Single-mode, 10 km
DEM-330R	1000BASE-LX, Wavelength Tx: 1310 nm Rx: 1550 nm, Single-mode, 10 km
DEM-331T	1000BASE-LX, Wavelength Tx: 1550 nm Rx: 1310 nm, Single-mode, 40 km
DEM-331R	1000BASE-LX, Wavelength Tx: 1310 nm Rx: 1550 nm, Single-mode, 40 km
DEM-220T	100BASE-BX, Wavelength Tx: 1550 nm Rx: 1310 nm, Single-mode, 20 km [5]
DEM-220R	100BASE-BX, Wavelength Tx: 1310 nm Rx: 1550 nm, Single-mode, 20 km [5]

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

ACN 052 202 838