

Product Highlights

- **Metro Ethernet certified**
MEF 21 certification for deployments in MAN and carrier networks
- **Robust Security**
With Access Control Lists, D-Link Safeguard Engine and Microsoft® NAP support
- **Power over Ethernet**
PoE versions for extra flexibility
- **IPv6 Ready**
Supports the new Internet standards
- **Simplified Management**
Web GUI for easy configuration



DES-3200 Series

Fast Ethernet Layer 2 Metro Ethernet Switches

Key Features

Traffic Control

- IGMP/MLD snooping
- Bandwidth limitation
- Broadcast storm control

Security

- Port-security
- ACL
- 802.1x
- Traffic segmentation
- IP-MAC-Port Binding

Management

- Web GUI
- Telnet/SSH
- SNMP

Green Technology

- D-Link Green 3.0
- Cable length detection
- Smart fans
- Hibernation mode

Introduction

The DES-3200 Series is a member of D-Link's Layer 2 Managed Switch family designed for the ETTX, FTTX, and enterprise markets. This Series provides 10/16/24/48 Fast Ethernet ports plus 2/4 combo Gigabit/SFP slots. The DES-3200-10/18 comes in a 9-inch desktop size and incorporates a fanless design suitable for ETTX deployment. The DES-3200-28/52 provide copper connections on Fast Ethernet, an advantage when used for Metro Ethernet applications. They also offer the beneficial design of 2/4 Gigabit/SFP Combo slots which provide up to 4 Gbps uplink bandwidth or dual Ethernet ring topology support. The DES-3200-28P/52P are IEEE 802.3af /802.3at -compliant switches that provide 15.4W in every port and up to 30 W on a number of ports for Power over Ethernet (PoE) applications that require extra powers.

Metro Ethernet Forum (MEF) certification for Carriers and Internet Service Providers

D-Link a pioneer in the industry has received the first round of MEF 21 for the DES-3200 Series. The MEF 21 certification guarantees that the DES-3200 Series meets the highest standards on OAM (Operations Administration Maintenance). The Connectivity Fault Management (CFM) feature provides tools to monitor and troubleshoot end-to-end Ethernet networks, allowing service providers to check connectivity, isolate network issues, and identify affected customers without the need to send a support technician to the site. D-Link Unidirectional Link Detection (DULD) provides discovery mechanisms based on IEEE 802.3ah to discover unidirectional traffic issues that can affect fibre links.

Security & Availability

The DES-3200 Series supports 802.1x Port-based/Host-based Access Control, Guest VLAN, RADIUS and TACACS+ 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 prioritises "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 Spanning Tree (STP), Rapid Spanning Tree (RSTP) and Multiple Spanning Tree (MSTP). STP allows you to configure the switch with redundant backup bridge path, so transmission and reception of data frames can be guaranteed in the event of any failed switch on the network. The Series also supports Link Aggregation Control Protocol (LACP), 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 DES-3200 supports advanced packet classification is based on TOS, DSCP, MAC address, IP addresses, VLAN ID, TCP/UDP port number, protocol type and user-defined packet content. This enables flexible configuration for specific multi-media applications such as IPTV. Additionally, the DES-3200 Series supports automatic, effective QoS function for voice traffic with the Auto Voice VLAN feature, which automatically places voice traffic into a dedicated VLAN with higher priority to guarantee the quality and security of voice conversations.

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. Bandwidth can also be effectively managed for multicast applications like Video On Demand (VoD) with the IGMP snooping and MLD snooping features, to limit multicast traffic only to Switch ports where subscribers connect, optimising the overall network performance. The Switches also support the Broadcast Storm Control feature which minimises the chance of a virus outbreak 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.



If the worst should happen to your network you need the very best support and fast. Downtime costs your business money. D-Link Assist maximises your uptime by solving technical problems quickly and effectively. Our highly trained technicians are on standby around the clock, ensuring that award-winning support is only a phone call away.

With a choice of three affordable service offerings covering all D-Link business products, you can select the package that suits you best:

D-Link Assist Gold - for comprehensive 24-hour support

D-Link Assist Gold is perfect for mission-critical environments where maximum uptime is a high priority. It guarantees four hour around-the-clock response. Cover applies 24/7 for every day of the year including holidays.

D-Link Assist Silver - for prompt same-day assistance

D-Link Assist Silver is designed for 'high availability' businesses that require rapid response within regular working hours. It provides a four hour response service Monday to Friday from 8am to 5pm, excluding holidays.

D-Link Assist Bronze - for guaranteed response on the next business day

D-Link Assist Bronze is a highly cost-effective support solution for less critical environments. Response is guaranteed within eight business hours Monday to Friday from 8am to 5pm, excluding holidays.

D-Link Assist can be purchased together with any D-Link business product. So whether you're buying switching, wireless, storage, security or IP Surveillance equipment from D-Link, your peace of mind is guaranteed. D-Link Assist also offers installation and configuration services to get your new hardware working quickly and correctly.

Management Capabilities

The DES-3200 series supports standard management protocols such as SNMP, RMON, Telnet/SSH/SSL 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 configurations 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. 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 7 software. D-View 6.0 is a SNMP-compatible Network Management System to centrally manage critical network characteristics such as availability, reliability, resilience, and security. D-View 7 provides a useful set of tools for network administrators who want to effectively manage device configurations, fault tolerance, performance, and security.

IPv6 Ready

The DES-3200 Series is fully compliant with the future IPv6 network. As the need for larger addressing spaces and higher security become critical, DES-3200 Series support IPv6 ACL, IMPBv6, and Neighbour Discovery (ND) Snooping functions to protect the network from illegal IPv6 clients. The DES-3200 Series has been certified with the IPv6 Ready Logo Phase 2 for full IPv6 application support.

D-Link Green Technology

D-Link is striving to take the lead in developing innovative and power-saving technology that does not sacrifice operational performance or functionality. The DES-3200 Series implements D-Link Green 3.0 Technology, which includes a power saving mode, smart fan, reduced heat dissipation, and cable length detection. The power-saving features include being able to schedule when to turn off LEDs and ports when not in use, and when to make the switch enter hibernation mode. The switches can also detect the length of connected cables to automatically adjust power usage by saving energy on shorter cable connections of up to 20 meters. The switches can also support power-saving by link status, which drastically reduces power consumption by automatically toggling ports without a link to sleep mode. The DES-3200-28P/52/52P feature built-in smart fans. Using a thermal sensor that can detect temperature change, the fans can react accordingly by utilising different fan speeds for different temperatures. The Smart Fan feature enables the built-in fans to automatically turn on at a certain temperature, providing continuous, reliable and eco-friendly operation of the Switch.

Technical Specifications	DES-3200-10	DES-3200-18	DES-3200-28	DES-3200-28P	DES-3200-52	DES-3200-52P
Interfaces						
10/100Base-TX	• 8	• 16	• 24	• 24	• 48	• 48
10/100/1000Base-T				• 2		• 2
100/1000 SFP	• 1	• 1	• 2		• 2	
Combo SFP + 10/100/1000Base-T	• 1	• 1	• 2	• 2	• 2	• 2
Console	• RJ-45					
Performance						
Switching capacity	• 5.6 Gbps	• 7.2 Gbps	• 12.8 Gbps		• 17.6 Gbps	
Max. forwarding rate	• 4.2 Mpps	• 5.4 Mpps	• 9.5 Mpps		• 13.1 Mpps	
MAC table size	• 8KB				• 16KB	
SDAM for CPU	• 128MB					
Packet buffer	• 384KB				• 1.5MB	
Flash memory	• 16MB				• 32MB	
Jumbo frame	• 2048 bytes	• 12KB				
LED						
Power	• Per device					
Console	• Per device					
Link/Act/Speed	• Per port					
Power over Ethernet						
Standards				• 802.3af (PoE) • 802.3at (PoE+)	• 802.3af (PoE) • 802.3at (PoE+)	
PoE ports				• 1-4: PoE+ • 5-24: PoE	• 1-8: PoE+ • 9-48: PoE	
Max. power budget				• 188W	• 370W	
Physical/Environment						
Racking size	• 9"-inch/1U		• 19"-inch/1U			
Dimensions	• 228 x 195 x 44		• 441 x 207 x 44	• 441 x 308 x 44		
Power Input	• 100-240 VAC, 50-60Hz					
Max Power Consumption	• 9.2W	• 10.7W	• 13.6W	• 250.78W	• 30.09W	• 417.6W
Power surge protection	• All Ethernet ports support IEC61000-4-5 10/700µs 6KV surge protection					
Ventilation	• Fanless			• Smart fan		
Heat Dissipation	• 31.3 BTU/hour	• 36.4 BTU/hour	• 48.4 BTU/hour	• 855.7 BTU/hour	• 113.9 BTU/hour	• 1608.2 BTU/hour
Acoustic (max)	• 0 dB			• 49.5 dB	32.8 dB	• 51.5 dB
MTBF (hours)	• 804,462	• 764,596	• 668,867	• 216,780	• 440,704	• 189,396
Operating temperature	• 0-50 °C			• -5-50 °C		
Storage Temperature	• -40-70 °C					
Operating Humidity	• 5-95% non-condensing			• 10-90% non-condensing		
Certifications						
EMI	• FCC Class A, CE Class A, VCCI Class A, IC, C-Tick, BSMI					
Safety	• CE, LVD, UL/cUL, CB, BSMI					
3rd party	• MEF 21, IPv6 Ready Phase 2					

Optional Products

Management Software

DV-700	D-View 7 Network Management Software (downloadable from http://dview.dlink.com)
DV-700-N25-LIC	D-View 7 License for 25 Nodes
DV-700-N250-LIC	D-View 7 License for 250 Nodes
DV-700-P10-LIC	D-View 7 License for 10 Probes

SFP Tranceivers	Standard	Mode	Max distance
DEM-210	100Base-FX	Multi-mode	2Km
DEM-211	100Base-FX	Single-mode	15Km
DEM-310GT	1000Base-LX	Single-mode	10Km
DEM-311GT	1000Base-SX	Multi-mode	550m
DEM-314GT	1000Base-LX	Single-mode	50Km

Functions & Features

Stackability

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

L2 Features

- Flow Control
 - 802.3x Flow Control
 - HOL Blocking Prevention
- Spanning Tree Protocols
 - 802.1D STP
 - 802.1w RSTP
 - 802.1s MSTP
 - BPDU Filtering
 - Root Restriction
- Loopback Detection
- Link Aggregation (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-3200-28/28P: Max. 14 groups, 8 ports per group
 - DES-3200-52/52P: Max. 26groups, 8 ports per group
- Port Mirroring
 - Support 1 Mirroring group
 - Support 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
 - Support 1024 Groups
 - Port/host-based IGMP snooping Fast Leave
 - Report Suppression
- MLD snooping
 - MLD v1, MLD v2 awareness
 - Support 1 K groups
 - Host-based MLD snooping Fast Leave

- IGMP Authentication
- IGMP /MLD Proxy Reporting²

VLAN

- 802.1q Tagged VLAN
- Max. 4K VLAN
- Port-based VLAN
- MAC-based VLAN
- GVRP (max. 255 dynamic VLAN)
- 802.1v Protocol VLAN
- VLAN Trunking
- Asymmetric VLAN¹
- Double VLAN (Q-in-Q)
 - Port-based Q-in-Q
 - Selective Q-in-Q
- ISM VLAN
- VLAN Translation

L3 Features

- IPv6 Neighbour Discovery (ND)

Quality of Service(QoS)

- Bandwidth Control
 - Port-based (Ingress/Egress, Min. Granularity 8Kbps)²
 - Flow-based (Ingress/Egress, Min. Granularity 8Kbps)²
 - Per egress queue bandwidth control (Min. Granularity 8 Kbps)²
- 8 Queues per Port
- DSCP
- 802.1p
- Queue Handling
 - Strict Priority
 - Weighted Round Robin (WRR)
 - Strict + WRR
- CoS based on:
 - Switch port
 - 802.1p Priority Queues
 - VLAN ID
 - MAC Address
 - Ether type

- TOS
- DSCP
- Protocol Type
- IPv4/v6 Address
- TCP/UDP Port
- IPv6 Traffic Class
- IPv6 Flow Label
- User-Defined Packet content
- Time-based QoS
- Support Following Actions for Flows
 - Remark 802.1p Priority Tag
 - Remark TOS/DSCP Tag
 - Bandwidth Control Flow Statistic
- Three Color Marker²
 - trTCM
 - srTCM

Access Control Lists (ACL)

- Up to 1024 ingress access rules
- ACL Based on
 - Switch Port
 - 802.1p Priority
 - VLAN ID
 - MAC Address
 - Ether Type
 - TOS
 - IPv4/v6 Address
 - DSCP
 - Protocol Type
 - TCP/UDP Port Number
 - IPv6 Traffic Class
 - IPv6 Flow Label
 - User-Defined Packet Content
- 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

Security

- Traffic Segmentation
- IP-MAC-Port Binding
 - ARP Inspection
 - IP Inspection
 - DHCP Snooping
- D-Link Safeguard Engine
- DHCP Server Screening
- DHCP client Filtering
- ARP Spoofing Prevention
- BPDU Attack Protection
- NetBIOS/NetBEUI Filtering²
- DoS attack Prevention
- L3 control Packet Filtering

AAA

- 802.1x Access Control
 - Port-based
 - Host-based
 - Dynamic VLAN Assignment
 - Identity-driven policy assignment (VLAN, ACL, QoS)
- MAC-based Access Control (MAC)2
 - Port-based
 - Host-based
 - Identity-driven policy assignment (VLAN, ACL, QoS)
- Microsoft® NAP (IPv4/v6)
 - Support 802.1X NAP
 - Support DHCP NAP
- Guest VLAN
- RADIUS
- TACACS
- TACACS+
- XTACACS+
- Trusted Host
- RADIUS Accounting
- 4 Level User Account

OAM

- Cable Diagnostics
- 802.3ah Ethernet Link OAM
- Dying Gasp
- 802.1ag Connectivity Fault Management (CFM)
- 802.3ah D-link Unidirectional Link Detection (DULD)2

Green

- D-Link Green 3.0: Power saving function
 - LED Shut-Off
 - Port Shut-Off
 - System Hibernation
- Time-based PoE (PoE models only)

Management

- Web-based GUI (IPv4)2
- Command Line Interface (CLI)
- Telnet Server/ Client (Support IPv4)
- TFTP Client (IPv4/v6)
- FTP client (IPv4)
- Zmodem
- Command Logging
- SNMP v1/v2c/v3
- SNMP Traps
- System Log
- SMTP
- RMON v1 (supports 1,2,3,9 groups)
- RMON v2 (support ProbeConfig group)
- LLDP (802.1ab)
- LLDP-MED
- BootP/DHCPClient
- DHCP Auto-Configuration
- DHCP Relay (IPv4)
- DHCP Relay Option 12
- DHCP Relay Option 82
- PPPoE Circuit-ID Tag Insertion
- Dual Image
- Flash file system²
- CPU Monitoring
- Memory Monitoring
- Debug Command
- SNTF
- Password Recovery
- Password Encryption
- Microsoft® NLB (Network Load Balancing) Support
- Ping (IPv4/v6)
- Traceroute
- Multiple IP Interface

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, 2819RMON MIB
- RFC2021RMONv2 MIB
- RFC1398, 1643, 1650, 2358, 2665, 3635 Ether-like MIB
- RFC2668 802.3 MAU MIB

- RFC2674,4363 802.1p MIB
- RFC 2233, 2863 IF MIB
- RFC 2618 RADIUS Authentication Client MIB
- RFC4022 MIB for TCP
- RFC4113 MIB for UDP
- RFC 3298 MIB for Deffserv.
- 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 Standards

- RFC768 UDP
- RFC791 IP
- RFC792 ICMPv4
- RFC2463, 4443 ICMPv6
- RFC4884 Extended ICMP to Support Multi-Part Messages
- RFC793 TCP
- RFC826 ARP
- RFC1338,1519 CIDR
- RFC 2474, 3168,3260 Definition of the DS Field in the IPv4 and IPv6 Header
- RFC 1321, 2284,2865, 2716, 1759, 3580, 3748 Extensible Authentication Protocol (EAP)
- RFC2571, RFC2572, RFC2573, RFC2574 SNMP

IPv6

- RFC1981 Path MTU Discovery
- RFC2460 IPv6
- RFC2461, 4861 Neighbour Discovery
- RFC2462, 4862 IPv6 Stateless Address Auto-configuration
- RFC2464 IPv6 Neighbour over Ethernet and definition
- RFC3513, 4291 IPv6 Addressing Architecture
- RFC2893, 4213 IPv4/IPv6 dual stack function
- IPv6 Ready Logo Phase 2

¹ Available on DES-3200-10/18/28

² Available on DES-3200-28P/52/52P



For more information: www.dlink.eu

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