

### Flexible Choices

- + 24 or 48 Fast Ethernet Ports
- + 802.3af PoE support on 10/100BASE-TX Ports<sup>1</sup>
- + 2 10/100/1000BASE-T
- + 2 Combo 10/100/1000BASE-T/SFP
- + SFP supports Gigabit or 100BASE-FX Fiber Connections

### 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
- + Root Restriction
- + 802.3ad Link Aggregation (Port Trunks)

### 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 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)
- + RADIUS/TACACS+ Authentication for Management Access
- + D-View 6.0 Network Management System
- + Link Layer Discovery Protocol (LLDP)

<sup>1</sup>Available on DES-3028P/3052P only

## Managed L2 Fast Ethernet Switches

The DES-3028/52 series is managed layer 2 Fast Ethernet switches, designed as premium devices in an entry-level network management category. These switches offer a rich set of security functions and an effective network setup at an affordable cost. Outstanding features include Power over Ethernet<sup>1</sup>, four Gigabit uplink combo ports, high port densities, granular bandwidth control and extensive network management functions. These switches deliver maximum results while remaining a full-featured and cost-effective solution for businesses.

### High Port Density & PoE Support

The DES-3028/52 series provides flexible choices of 24 or 48 Fast Ethernet ports, with or without PoE<sup>1</sup> in low profile rack-mount cases. Each switch is equipped with four Gigabit Ethernet ports including the two combo SFP capable of both Gigabit and 100BASE-FX fiber connections for user-specific applications.

### Security & Availability

The DES-3028/52 series supports 802.1X Port-based/Host-based Access Control, Guest VLAN, and RADIUS and TACACS+ 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 and also to define the 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 by 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-3028/52 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 fail-over switch on the network. The switches also support 802.3ad Link Aggregation, which enable you to group multiple ports in parallel to form a single port, increasing bandwidth and redundancy for higher availability. For the 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, IPv4, 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 to manage bandwidth. It also provides fine granularity to define the ingress/egress traffic limits down to 64Kbps segments. The switches also support the Broadcast Storm Control feature, which minimizes the chances 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-3028/52 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-3028/52 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, an enhanced management feature allows administrators to pre-set configuration and save them in a TFTP server. Individual switches can then boot their IP addresses from the server and load in 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 help businesses, better manage their network topology. Each port on the switches also support Cable Diagnostic feature that helps detect cable related problems such as length or cable functionality. The 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.



### Technical Specifications

#### DES-3028

#### DES-3028P

#### DES-3052

#### DES-3052P



Physical & Hardware		DES-3028	DES-3028P	DES-3052	DES-3052P
Physical & Hardware	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 10/100/1000BASE-T 2 Combo 10/100/1000BASE/SFP	24 10/100BASE-TX 2 10/100/1000BASE-T 2 Combo 10/100/1000BASE/SFP	48 10/100BASE-TX 2 10/100/1000BASE-T 2 Combo 10/100/1000BASE/SFP	48 10/100BASE-TX 2 10/100/1000BASE-T 2 Combo 10/100/1000BASE/SFP
	Console Port	RS-232 Console Port			
	802.3af PoE Support	-	Per 10/100BASE-TX Port	-	Per 10/100BASE-TX Port
Performance	Switching Capacity	12.8 Gbps	12.8 Gbps	17.6 Gbps	17.6 Gbps
	64-Byte Packet Forwarding Rate	9.5 Mpps	9.5 Mpps	13.1 Mpps	13.1 Mpps
	MAC Address Table Size	8K	8K	8K	8K
	SDRAM for CPU	64 MB	64 MB	64 MB	64 MB
	Packet Buffer	512 KB	512 KB	512 KB	512 KB
	Flash Memory	8 MB	8 MB	8 MB	8 MB
	Jumbo Frame (2048 Bytes Tagged, 2044 Bytes Un-Tagged)	√	√	√	√
Diagnostic LEDs	Power (Per Device)	√	√	√	√
	Console (Per Device)	√	√	√	√
	Link/Activity (Per Port)	√	√	√	√
	Speed Indicator (Per Port)	√	√	√	√
	PoE	-	√	-	√
MTBF (Hours)	248,271 hours	196,033 hours	292,133 hours	169,182 hours	
Heat Dissipation	64.1 BTU per hour	742.7 BTU per hour	86.96 BTU per hour	1347 BTU per hour	
Power Input	100 to 240 VAC, 50 to 60 Hz Internal Universal Power Supply				
Power Consumption	18.8W	217W	25.5W	395W	
Dimensions	441 (W) x 207 (D) x 44(H) mm (17.36 x 8.15 x 1.73 inches)		441 (W) x 309 (D) x 44(H) mm (17.36 x 8.15 x 1.73 inches)		
Ventilation DC Fan	Fanless	2 DC Fans	Fanless	3 DC Fans	
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, C-Tick, VCCI Class A				
Safety	cUL, LVD				

### 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)

\*Also supports D-View 5.1

#### Optional SFP Transceivers

DEM-310GT	1000BASE-LX, Single-mode, 10km
DEM-311GT	1000BASE-SX, Multi-mode, 500m
DEM-312GT2	1000BASE-SX, Multi-mode, 2km
DEM-314GT	1000BASE-LX, Single-mode, 50km
DEM-315GT	1000BASE-LX, Single-mode, 80km
DEM-210	100BASE-FX, Single-mode, 15km
DEM-211	100BASE-FX, Multi-mode, 2km

#### Optional SFP Transceivers

DEM-330T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 10km
DEM-330R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 10km
DEM-331T	1000BASE-LX, Wavelength Tx:1550nm Rx:1310nm, Single-mode, 40km
DEM-331R	1000BASE-LX, Wavelength Tx:1310nm Rx:1550nm, Single-mode, 40km

### Software Features

#### Stackability

- + Virtual Stacking:
  - Supports D-Link Single IP Management
  - Up to 32 devices per Virtual Stack

#### L2 Features

- + MAC Address Table: 8k
- + Jumbo Frames support up to 2048 bytes
- + IGMP Snooping:
  - IGMP v1/v2 Snooping
  - Supports 256 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
  - Supports 256 groups
  - MLD Snooping Fast Leave
- + IGMP Authentication
- + Spanning Tree:
  - 802.1D-2004 Edition STP
  - 802.1w RSTP
  - 802.1s MSTP
  - BPDU Filtering
  - Root Restriction
- + Loopback Detection (LBD)
- + 802.3ad Link Aggregation:
  - Max. 6 groups per device, 8 ports per group
- + Port Mirroring:
  - Supports One-to-One, Many-to-One, Flow-based Mirroring
- + Flow Control:
  - 802.3x Flow Control
  - HoL Blocking Prevention

#### VLAN

- + 802.1Q Tagged VLAN
- + VLAN Group:
  - Max. 4K VLAN
- + Port-based VLAN
- + GVRP:
  - Max. 255 Dynamic VLAN
- + Asymmetric VLAN
- + Double VLAN (Q-in-Q):
  - Port-based Q-in-Q
- + ISM VLAN

#### Quality of Service (QoS)

- + Bandwidth Control:
  - Port-based (Ingress/Egress, min. granularity 64kbps)
  - Flow-based (Ingress, min. granularity 64kbps)
- + 4 queues per port
- + 802.1p Quality of Service
- + Queue Handling:
  - Strict
  - Weighted Round Robin (WRR)

- + CoS based on:
  - Switch Port
  - VLAN ID
  - 802.1p Priority Queues
  - MAC Address
  - IP Address
  - DSCP
  - Protocol Type
  - TCP/UDP Port
  - User-Defined Packet Content
- + Time Based QoS

#### Access Control List (ACL)

- + Up to 256 Access Rules
- + ACL based on:
  - 802.1p Priority
  - VLAN ID
  - MAC Address
  - Ether Type
  - IP Address
  - DSCP
  - Protocol Type
  - TCP/UDP Port Number
  - User Defined Packet Content
- + Time-based ACL
- + CPU Interface Filtering

#### Security

- + SSH v2
- + SSL v1/v2/v3
- + Port Security up to 16 MAC address per port
- + Broadcast/Multicast/Unicast Storm Control
- + Traffic Segmentation
- + IP-MAC-Port Binding (IMPB):
  - ARP Packet Inspection
  - IP Packet Inspection
  - DHCP Snooping
  - Supports 500 Address Binding Entries per device
- + D-Link Safeguard Engine

#### AAA

- + 802.1X:
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
- + Guest VLAN
- + RADIUS Accounting
- + RADIUS and TACACS + authentication for switch access

#### Management

- + Web-Based GUI
- + Command Line Interface (CLI)
- + Telnet Server/Client
- + TFTP Client
- + XModem

- + ZModem
- + SNMP v1/v2c/v3
- + SNMP Traps
- + RMON v1:
  - Supports 1,2,3,9 groups
- + RMON v2:
  - Supports ProbeConfig group
- + BootP/DHCP Client
- + DHCP Auto-Configuration
- + DHCP Relay
- + DHCP Relay Option 82
- + System Log
- + Dual Image
- + CPU Monitoring
- + SNMP
- + LLDP
- + Debug Command
- + Cable Diagnostics

#### MIB/IETF Standard

- + RFC2866 RADIUS Accounting
- + RFC2138 RFC2139 RADIUS Auth. for Management Access
- + RFC1492 TACACS + Auth for Management Access
- + RFC2068 HTTP
- + RFC768 UDP
- + RFC783 TFTP
- + RFC791 IP
- + RFC792 ICMP
- + RFC793 TCP
- + RFC826 ARP
- + RFC854 Telnet
- + RFC783 TFTP
- + RFC1157, 1901, 1908, 2570, 2575 SNMP
- + RFC2819 RMON v1
- + RFC951, 1542 BootP/DHCP client
- + RFC3046 DHCP relay
- + RFC3164, 3195 System Log
- + RFC1213 MIB II
- + RFC1493 Bridge
- + RFC1907 SNMP v2 MIB
- + RFC1757, 2819 RMON
- + RFC2021 RMON v2
- + RFC1643, 2358, 2665 Ether-like MIB
- + RFC2674 802.1p
- + RFC2233, 2863 IF MIB
- + RFC2618 RADIUS Authentication Client
- + RFC2620 RADIUS Accounting Client MIB
- + RFC2925 Ping & TRACEROUTE
- + Private MIB



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