

## L2+ Ethernet Stack

### Enhanced Access Layer Switch

- Choices of 24 or 48 Ethernet Ports
- 802.3af PoE support on 10/100BASE-TX Ports<sup>1</sup>
- 2 Combo 10/100/1000BASE-T/SFP Gigabit Uplinks
- 2 10/100/1000BASE-T Gigabit Uplinks
- Virtual Stacking or Physical High-Speed Stacking<sup>2</sup>
- Robust Security & L2/L3/L4 Multi-Layer QoS
- Malicious Traffic and Performance Degradation Prevention

The DES-3528/3552 xStack series are enhanced L2+ access stackable switches designed to connect end-users in a secure SMB (small and medium size business) or enterprise network. These switches provide physical stacking<sup>2</sup>, static routing<sup>2</sup>, multicast and enhanced security, making it an ideal access layer solution. The DES-3528/3552 xStack Series can seamlessly integrate with L3 core switches to form a multi-level network structure consisting of a high-speed backbone and centralized servers.

**Flexible & Cost-Effective Ethernet Stack.** The DES-3528/3552 series provide the option of 24 or 48 10/100Mbps Ethernet ports and up to four Gigabit uplinks per switch. Users requiring connections to devices such as IP phones, network cameras and wireless APs can deploy the DES-3528P, which provide 24 10/100Mbps PoE ports. Eight of these PoE ports provide up to 30watts per port, while the remaining adhere to the 802.3af standard (15.4watt output per port), giving administrators the ability to connect to the 802.3af standard devices as well as the 802.3at pre-standard equipment such as the 802.11n AP. The two combo 10/100/1000BASE-T SFP slots on the front panel provide flexible copper or fiber Gigabit connection. The two 10/100/1000BASE-T ports on the back panel are designed for flexible dual usage. They can be used either as stacking ports with 4Gbps bidirectional stacking bandwidth, or can simply be used as copper Gigabit uplinks. Physical stacking<sup>2</sup> capability allows administrators to add up to eight switch units per stack on a scalable expansion basis. This series offers an attractive stackable switch alternative to the expensive chassis-based solution.

**Comprehensive Security.** The DES-3528/3552 series provide users with the latest security features such as 802.1X Guest VLAN, MAC-based Access Control (MAC) and Web-based Access Control (WAC). 802.1X Guest VLAN is a comprehensive end-point security solution for user authentication/authorization and WAC guarantees granular network access control with a user-friendly authentication mechanism. 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. And with DHCP Snooping feature, the switch automatically learns the IP/MAC pairs by snooping DHCP packets and saving them to the IMPB white list. This keeps the network secure and auditable. The D-Link Safeguard Engine identifies and prioritizes "CPU interested" packets to prevent malicious traffic from interrupting normal network flows and protects switch operation.

**Enhanced Network Performance & Availability.** The DES-3528/3552 series targets SMB/enterprise customers who require a high level of network security and maximum uptime. It offers Static Route<sup>2</sup>, 4K VLAN, advanced selective Q-in-Q, as well as delivering progressive QoS capability for mission-critical applications and multicast services. The switches offer superior performance and availability through the latest Spanning Tree protocol, optional redundant power, and Loopback Detection (D-Link's advanced technology for preventing loops without the presence of STP).

**User-friendly & Ecosystem-friendly.** The DES-3528/3552 series uses D-Link's Web GUI 2.0, an easy-to-use web interface, and configuration wizards to minimize administrators' learning curve and make deployments easier to plan and implement. Utilizing the latest generation of chipsets, the DES-3528/3552 series optimizes power consumption to reduce energy costs and contribute to a greener environment. In addition, its fanless design ensures quiet operation, ideal for deployment in open spaces.

<sup>1</sup> Available on DES-3528P only

<sup>2</sup> Physical Stacking and Static Route are planned for future releases

#### FEATURES

##### xStack Integration

- Virtual Stacking of up to 32 units
- Embedded D-Link SIM for integration of all the xStack switches
- 1 Physical Stacking of up to 8 units<sup>2</sup>

##### VLAN

- 4K VLAN support
- Selective Q-in-Q and VLAN Translation
- MAC-based VLAN
- 802.1v protocol-based VLAN

##### Security

- L2/L3/L4 Multi-Layer Access Control
- External RADIUS/TACACS+ Authentication
- SSH/SSL
- Guest VLAN
- Web-based Access Control (WAC)
- MAC-based Access Control (MAC)
- IP-MAC-Port Binding (IMPB)
- D-Link Safeguard Engine
- Supports Microsoft NAP

##### Quality of Service

- 802.1p Priority Queues/Multi-Layer CoS
- IP Multicast support for bandwidth-intensive applications

##### Traffic Monitoring & Bandwidth Control

- Port Mirroring
- Traffic Segmentation
- Bandwidth Control down to 64bps
- Broadcast Storm Control
- Committed Information Rate
- RMON v1/v2 support

##### Management

- Web-based GUI
- Command Line Interface (CLI)
- Telnet Server
- SNMP v1, v2c, v3
- D-Link Single IP Management (SIM)
- D-View 6.0 Network Management System



**Technical Specifications**

**DES-3528**

**DES-3528DC**

**DES-3528P**

**DES-3552**



**Interface**

10/100BASE-TX Ports  
PoE Support On 10/100BASE-TX Ports\*  
Dual Usage 10/100/1000BASE-T Stacking Ports\*\*  
Combo 10/100/1000BASE-T Ports/SFP Slots  
Auto-Negotiation of Network Speeds (RJ-45 Ports)  
Auto-MDI/MDIX (RJ-45 Ports)  
Gigabit & 100BASE-FX Fiber Support On SFP  
RS-232 Console Port

24	24	24	48
-	-	✓	-
2	2	2	2
2	2	2	2
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓

**Power**

Internal Power Supply  
Power Input  
Power Output (per device)  
Power Output (per PoE port)  
Power Consumption  
Optional Redundant Power Supply

AC to DC	DC to DC	AC to DC	AC to DC
100 to 240VAC, 0.5A (max.), 50 to 60Hz	48VDC, 0.6A (max.)	100 to 240VAC, 6.3A (max.), 50 to 60Hz	100 to 240VAC, 0.8A (max.), 50 to 60Hz
12VDC, 1.2A (max.)	12VDC, 1.2A (max.)	50VDC, 7.5A (max.), 12VDC, 1.4A (max.)	12VDC, 2.1A (max.)
-	-	30watts (max.), Ports (1-8) 15.4watts (max.), Ports (9-24)	-
20.5watts (max.)	18.38watts (max.)	505.1watts (max.)	33.1watts (max.)
✓	-	✓	✓

**Performance**

Switching Capacity  
Max. 64-Byte System Packet Forwarding Rate  
MAC Address Table

12.8Gbps	12.8Gbps	12.8Gbps	17.6Gbps
9.5Mpps	9.5Mpps	9.5Mpps	13.1Mpps
16K	16K	16K	16K

**Diagnostic LEDs**

10Mbps or 100Mbps Speed (per Ethernet port)  
10/100Mbps or 1000Mbps Speed (per Gigabit port)  
Link/Activity (per port)  
Power, Console, (per device)  
RPS (per device)

✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	-	✓	✓

**Physical/Environmental**

Ventilation DC Fans  
Heat Dissipation  
Dimensions  
Rack Mounting  
Weight  
Operating Temperature  
Storage Temperature  
Operation Relative Humidity  
Storage Relative Humidity  
EMI  
Safety  
MTBF  
Acoustic (refer to ISO-7779)  
3rd Party Certification

Fanless	Fanless	4 DC Fans	2 DC Fans
69.9 BTU/hour	62.68 BTU/hour	1723 BTU/hour	112.87 BTU/hour
441 x 210 x 44 mm	441 x 210 x 44 mm	441 x 310 x 44 mm	441 x 310 x 44 mm
19-Inch Standard Rack-Mount Width, 1U Height			
2.51 kg (5.53 lbs)	2.52 kg (5.55 lbs)	5.42kg (11.94 lbs)	4.09 kg (9.01 lbs)
0° to 45 °C	0° to 45 °C	0° to 45 °C	0° to 45 °C
-40°C to 70 °C	-40°C to 70 °C	-40°C to 70 °C	-40°C to 70 °C
20 to 80% Non-Condensing			
10 to 90% Non-Condensing			
CE Class A, FCC Class A, C-Tick, VCCI			
CB, UL / cUL			
203,785 hours	419,736 hours	345,226 hours	380,412 hours
0dB	0dB	37.7dB at max speed of fan	35.1dB at max speed of fan
MEF 9,14	-	-	-

\*Ports 1 to 8 support 802.3af and pre-standard 802.3at, and ports 9 to 24 support 802.3af only.  
\*\* Dual usage refers to stacking or standard Gigabit ports.

## Software Features

### Stackability

- Virtual Stacking:
  - Supports 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 support up to 9,216 bytes
- Spanning Tree Protocol:
  - 802.1D STP
  - 802.1w RSTP
  - 802.1s MSTP
  - BPDU Filtering
- Loopback Detection (LBD)
- 802.3ad Link Aggregation:
  - Max. 8 groups per device, 8 ports per group
- Port Mirroring:
  - One-to-one
  - Many-to-one
  - Flow-based Mirroring

### L2 Multicasting

- IGMP Snooping:
  - IGMP v1/v2/v3 Snooping
  - Supports 256 groups
  - IGMP Snooping Fast Leave
- Limited IP Multicasting (IGMP Filtering):
  - Up to 24 IGMP Filtering Profiles, 128 ranges per profile
- MLD Snooping:
  - MLD v1/v2 Snooping
  - Supports 256 groups
  - MLD Snooping Fast Leave

### VLAN

- VLAN Group:
  - Max. 4K VLAN
- GVRP:
  - Max. 256 Dynamic VLAN
- 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
- MAC-based VLAN
- ISM VLAN
- Asymmetric VLAN

### Quality of Service (QoS)

- 802.1p Quality of Service
- 8 queues per port
- Queue Handling:
  - Strict Priority
  - Weighted Round Robin (WRR)
  - Strict + WRR
- 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
- Actions for flows:
  - Remark 802.1p Priority Tag
  - Remark TOS/DSCP Tag
  - Bandwidth Control
  - Flow Statistics
  - Committed Information Rate (CIR), min. granularity 64Kbps
- SRED Congestion Control
- Bandwidth Control:
  - Port-based (Ingress/Egress, min. granularity 64Kbps)
  - Flow-based (Ingress, min. granularity 64Kbps)
- Time-based QoS

### Access Control List (ACL)

- Up to 768 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

### 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 Packet Inspection
  - IP Packet Inspection
  - DHCP Snooping
  - Supports 500 Address Binding Entries per device
- D-Link Safeguard Engine
- NetBIOS/NetBEUI Filtering
- DHCP Server Screening
- DHCP Client Filtering
- BPDU Attack Protection

### AAA

- 802.1X:
  - Port-based Access Control
  - Host-based Access Control
  - Dynamic VLAN Assignment
- Web-based Access Control (WAC):
  - Port-based Access Control

- Dynamic VLAN Assignment
- MAC-based Access Control (MAC):
  - Host-based Access Control
  - Dynamic VLAN Assignment
- Japanese Web-based Access Control (JWAC)
- Guest VLAN
- Supports Microsoft® NAP
- RADIUS Accounting
- RADIUS and TACACS+ Authentication for Switch Access
- Three Level User Accounts

### Management

- Web-based GUI
- Command Line Interface (CLI)
- Telnet Server
- TFTP Client
- ZModem
- SNMP v1/v2c/v3
- SNMP Traps
- System Log
- RMON v1:
  - Supports 1, 2, 3, 9 groups
- RMON v2
  - Supports ProbeConfig group
- LLDP
- BootP/DHCP Client
- DHCP Auto-Configuration
- DHCP Relay
- DHCP Relay Option 82
- PPPoE Circuit-ID Tag Insertion
- DHCP Server
- Dual Image
- Dual Configuration
- CPU Monitoring
- NTP/SNTP
- Password Recovery
- Password Encryption

### MIB

- RFC1213 MIB-II
- RFC1493 Bridge MIB
- RFC1907 SNMPv2 MIB
- RFC1757, 2819 RMON MIB
- RFC2021 RMONv2 MIB
- RFC1643, 2358, 2665 Ether-like MIB
- RFC2674 802.1p MIB
- RFC2233, 2863 IF MIB
- RFC2618 RADIUS Authentication Client MIB
- RFC2620 RADIUS Accounting Client MIB
- RFC2925 Ping & TRACEROUTE MIB
- D-Link Private MIB

### IETF® Standard

- RFC768 UDP
- RFC783 TFTP
- RFC791 IP
- RFC792 ICMP
- RFC793 TCP
- RFC826 ARP
- RFC854 Telnet
- RFC951, 1542 BootP
- RFC2068 HTTP
- RFC2138 RADIUS
- RFC2139, 2866 RADIUS Accounting

- RFC2474 DiffServ
- RFC2597 DSCP AF
- RFC2598 DSCP EF
- RFC1492 TACACS
- RFC1157 SNMPv1
- RFC1901, 1908 SNMPv2c
- RFC2570, 2575 SNMPv3
- RFC3164, 3195 Syslog
- RFC3046 DHCP Relay Option

### Optional SFP Transceivers

- DEM-310GT SFP transceiver for 1000BASE-LX, singlemode fiber, max. distance 10km, 3.3V
- DEM-311GT SFP transceiver for 1000BASE-SX, multi-mode fiber, max. distance 550m, 3.3V
- DEM-312GT2 SFP transceiver for 1000BASE-SX, multi-mode fiber, max. distance 2km, 3.3V
- DEM-314GT SFP transceiver for 1000BASE-LHX, singlemode fiber, max. distance 50km, 3.3V
- DEM-315GT SFP transceiver for 1000BASE-ZX, singlemode fiber, max. distance 80km, 3.3V
- DEM-210 SFP transceiver for 100BASE-FX, singlemode fiber, max. distance 15km, 3.3V
- DEM-211 SFP transceiver for 100BASE-FX, multimode fiber, max. distance 2km, 3.3V

### Optional Redundant Power Supply

- DPS-200 60-watt redundant power supply
- DPS-600 500-watt redundant power supply (for DES-3528P only)
- 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 System (Standard Edition)
- DV-600P D-View 6.0 Network Management System (Professional Edition)

\*Also supports D-View 5.1

