



### High Performance Switching

- + Stack up to 32 Units per stack using D-Link® Single IP Management (SIM)
- + Physical Stacking up to 8 Units<sup>1</sup>
- + Jumbo Frames up to 9KBytes

### Security

- + D-Link Safeguard Engine™
- + Microsoft® NAP
- + SSHv2, SSLv3
- + TACACS+, RADIUS
- + IP-MAC-Port Binding
- + DHCP Server Screening
- + Traffic Segmentation
- + L2/3/4 Access Control List
- + Time-based ACL
- + Guest VLAN
- + MAC-based Access Control (MAC)
- + Web-based Access Control (WAC)
- + Loopback Detection

### Network Management

- + SNMPv1/v2c/v3 Support
- + RMON (4 Groups)
- + Web GUI or CLI
- + Cross Stack Port Mirroring
- + sFlow
- + LLDP
- + RSPAN

## xStack® Managed 24/48-Port 10/100 Stackable L2+ Switch with 4 Gigabit Copper Ports and 2 Combo SFP Slots

The D-Link® xStack® DES-3528/3552 is a high-performance, managed, stackable Layer 2 switch that provides an ideal solution for workgroups and edge deployments of a network. The D-Link Single IP Management (SIM) allows administrators to cluster up a virtual stack of up to 32 DES-3528/3552 dispersed switches with fewer distance limitations through a single IP address. The clustering environment spans buildings, making it perfect for businesses that require multiple building deployments. The DES-3528/3552 also supports physical stacking of up to eight units in a stack, so that the entire stack can act as a single logical unit with up to 4Gbps of stacking backplane. The DES-3528/3552 also provides comprehensive security for edge access such as Access Control List, DHCP Server Screening and DoS Attack Prevention.

### Non-blocking Switching

The DES-3528/3552 provides a non-blocking switching solution for 10/100 Fast Ethernet connections. The DES-3528/3552 supports 24 10/100Mbps ports, with four gigabit 10/100/1000BASE-T ports. Two of these copper Gigabit ports are disabled when the two 1000BASE-X SFP are used, also known as dual personality or combo ports. The DES-3528/3552 has a non-blocking bandwidth of 12.8Gbps and has a redundant power option for mission critical applications.

### Advanced Network Security

For edge network security, the DES-3528/3552 supports DHCP Server Screening, Client Filtering, and IP-MAC-Port Binding to prevent security breaches such as rogue DHCP server, man-in-the-middle attacks and IP spoofing. For clients with Windows® XP SP3, Windows Vista®, or servers with Windows Server® 2008, the DES-3528/3552 works in conjunction with Microsoft's Network Access Protection (NAP) as part of an ecosystem that enforces compliance with network health policies.

The DES-3528/3552 will grant network host access only if it complies with IT security policies such as up-to-date anti-virus signatures and operating system patches. This prevents a virus-infested client or server from gaining access and furthering contamination.

The DES-3528/3552 also supports loopback detection, which detects a loop in the network even though the end device causing the loop is without spanning tree. When the switch detects a loop is in the connected node, the DES-3528/3552 shuts down the port with the loop so that the entire system will continue to function normally. This feature can also be VLAN based.

The DES-3528/3552 incorporates advanced mechanisms to detect an attack against the switch's central processing unit and take corrective action on the attacking interface. When a Denial-of-Service attack is waged against the xStack switch, the D-Link Safeguard Engine™ detects the threat and prevents overload of the central processor, thus ensuring network integrity and helping to maintain open network bandwidth channels.

In addition, the DES-3528/3552 supports 802.1X Authentication, which securely allows users to log onto your network. When used in conjunction with a RADIUS server, 802.1X requires each user workstation attached to the xStack switches to provide a username and password before gaining access to the network. Web-based authentication option is available for those clients who may not have the 802.1X supplicant, while MAC-based authentication can make the authentication process automatically authenticated by the 802.1X server based on the client's MAC address. Other security features include Access Control List, in which an administrator can restrict the access of a network through a variety of means including MAC address, IP, UDP/TCP, and even VLAN ID.



### Advanced Standards-based Enterprise Features

- + 802.1p Priority (8 Queues)
- + L2/L3/L4 QoS
- + 802.1X (Port/MAC-based)
- + 802.1Q VLANs (port-based, up to 4K Groups)
- + MAC-based VLAN
- + MAC-based VLAN
- + Selective Q-in-Q
- + IGMP Snooping v1/2/3
- + MLD Snooping v1/2

### VoIP Deployment

- + Auto Voice VLAN
- + Highest priority for VoIP service

## Web Smart 24/48-Port Switches with 2GbE and 2 Combo SFP Slots

### xStack Integration

The xStack DES-3528/3552 provides D-Link Single IP Management Technology (SIM), allowing a set of switches to be managed by a single IP, regardless of geographical locations. Traffic running among units in this virtual stack goes through the full-duplex Gigabit interfaces and your usual network wires, doing away with the costly and cumbersome stacking cables. Without any stacking cable, cable distance barrier, and physical stacking limitations, your stack can comprise of units that are located anywhere on the network, minimizing the impact of any single point of failure. Furthermore, multiple xStack switches can be configured, monitored and maintained from any workstation running a web browser through one unique IP address. The stack is managed as a single object, with all units identified by a single IP address. With Tree View, you can obtain an overview of the members of the stack and a network topology showing the locations of the units and their link information. This provides simple yet powerful web-based management without expensive SNMP network management software. You can add up to 32 switches per stack and are not limited to any specific D-Link SIM models.

Additionally, the two 10/100/1000BASE-T ports on the back panel of the DES-3528/3552 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 capability allows administrators to add up to eight switch units per stack<sup>1</sup> on a stackable expansion basis. The DES-3528/3552 offers an attractive stackable switch alternative to the expensive chassis-based solution.

### Voice and Video Applications

For today's businesses, having voice, data and video on the same network is common practice. This challenge is met by the DES-3528/3552, which supports 802.1p

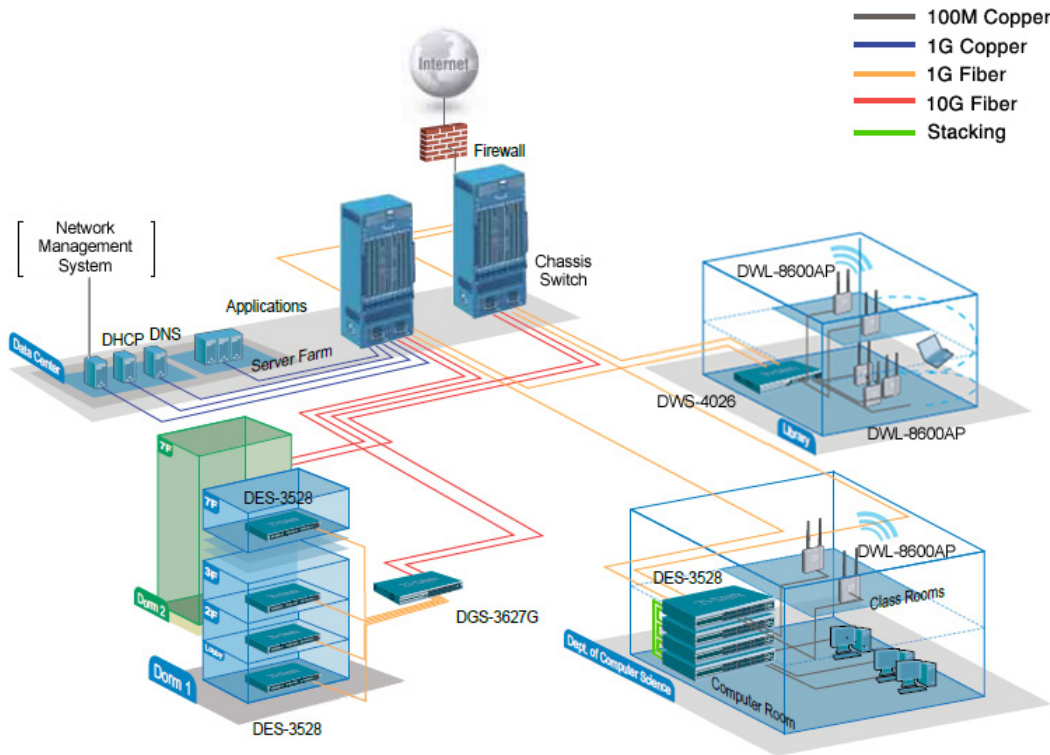
with eight queues. The administrator can designate the priority of the traffic based on a variety of means including IP or MAC address, so that voice data is always clear and jitter-free. Video traffic can also be assigned with the same priority. In addition, the DES-3528/3552 provides IGMP Snooping or MLD Snooping, which allows the forwarding of multicast packets such as streaming audio and video, without increasing network broadcast congestion. By snooping IGMP registration information within a frame, a list of workstations in the multicast group is created. This list then allows the switch to intelligently forward packets to only the appropriate member workstations. In conjunction with the 802.1Q VLANs, Quality of Service and security can be achieved on a network infused with data traffic.

For other multimedia-on-demand applications, such as IPTV deployments, the DES-3528/3552 provides advanced features for easy video streaming management. For example, this xStack family supports per port multicast stream control, which allows a service provider to assign limited multicast addresses per port. This means it can act as a security control that pre-configures channels for each subscriber on a port level to prevent unauthorized hosts from receiving traffic for a multicast group they did not join. DES-3528/3552 also supports IGMP multicast VLAN, which eliminates duplicate multicast traffic being sent to clients in different VLANs, thus removing bottlenecks in the uplink port.

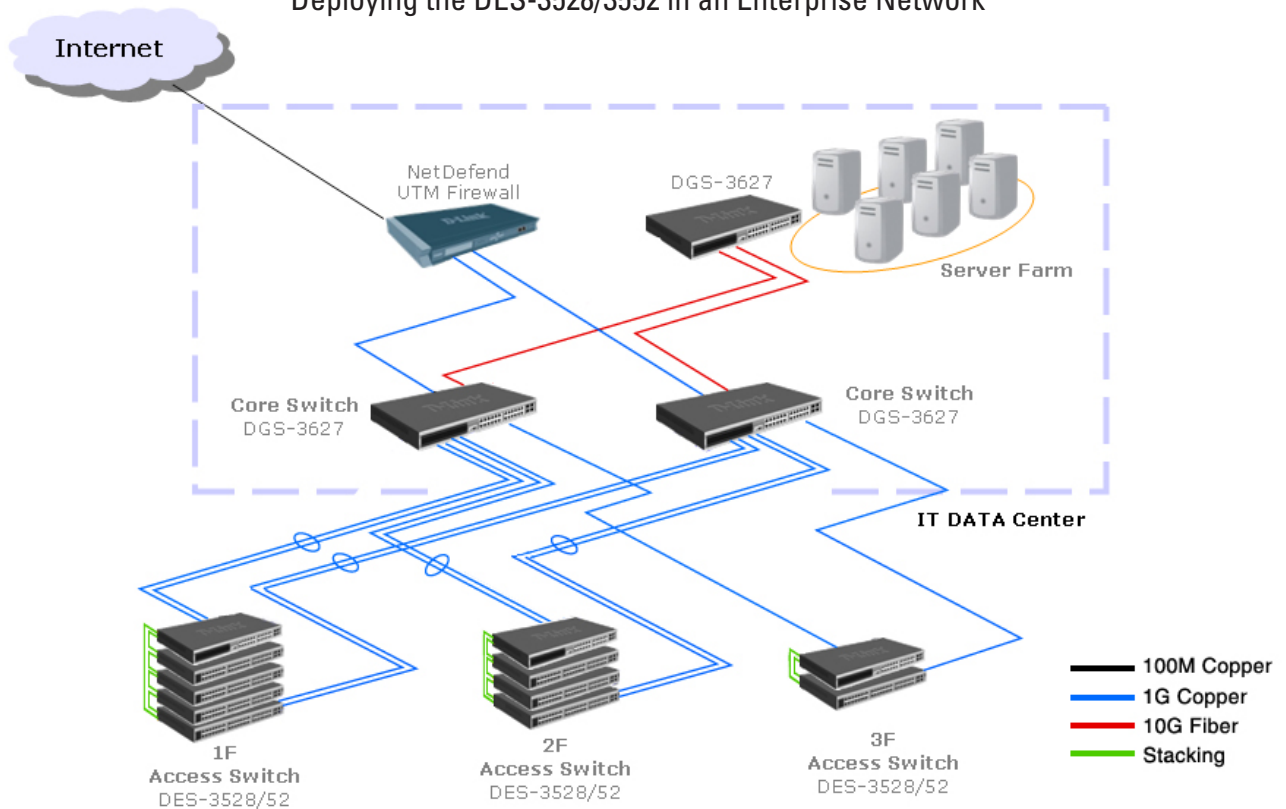
### Ease of Management

The DES-3528/3552 supports SNMP v1/2c/3 so traps can be set on abnormal events and information can be polled to maximize the productivity of the network. Other standard management features are also supported including RMON and IEEE 802.1D/w/s spanning tree. User interface includes an intuitive web-based browser graphic interface or industry-standard CLI, either of which can be protected through SSL or SSH encryptions.

### Deploying the DES-3528/3552 in a Campus Network



### Deploying the DES-3528/3552 in an Enterprise Network



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## Product Specifications

Device Interface	DES-3528	DES-3552
10/100BASE-TX Ports	24	48
10/100/1000BASE-T Stacking Ports	2	2
Combo SFP Slots	2	2
RS-232 Console Port	yes	yes
Performance	DES-3528	DES-3552
Switch Capacity	12.8Gbps	17.6Gbps
64-Byte Packet Forwarding Rate	9.5 Mpps	13.1 Mpps
MAC Address Table Size	16K	16K
Packet Buffer	1MB	1MB
Flash Memory	16MB	16MB
Jumbo Frame Support	9216 KBytes	9216 KBytes
Number of VLANs Per Device	Maximum 4,096 Static VLAN Groups Maximum 255 Dynamic VLAN Groups	
Quality of Service (QoS)	8 Independent Hardware Queues (802.1p/Diffserv/ToS)	
Stackability	Virtual Stacking with D-Link Single IP Management (SIM) Up to 32 Devices per Virtual Stack	
MLD v1/v2	256 Groups Supported	
Access Control Lists	Up to 768 Access Rules, Time-based ACL, CPU Interface Filtering, VLAN-based ACL, ACL Statistics	
IGMP Snooping	Supports 256 Groups, IGMP Fast Leave, Host-based IGMP Fast Leave <sup>1</sup>	
Flow Control	802.3x Flow Control, HOL Blocking Prevention	
Port Mirroring	Supports one-to-one or many-to-one, Flow-based mirroring	
Link Aggregation	Supports up to eight 8-port Groups	
D-Link Safeguard Engine	Protects CPU from Broadcast/Multicast/Unicast Flooding	
Web-based Graphic User Interface (GUI)	Compatible with Internet Explorer®, Netscape®, Mozilla®, Firefox®, Opera®, Safari® browsers	

## Interface Options

RJ-45	10BASE-T, 100BASE-TX & 1000BASE-T
SFP Expansion Slots	Media Support Dependent On GBIC Transceiver
Diagnostic LEDs	Per Device: Power, Console, RPS
	Per Gigabit Port: Link/Activity, 10/100Mbps or 1000Mbps Speed
	Per Ethernet Port: Link/Activity, 10Mbps or 100Mbps Speed

## Network Management

In & Out of Band	Web-based GUI, Single IP Management v1.6, Command Line Interface (CLI), Telnet Server, Zmodem, SNMP v1/v2c/v3, SNMP Traps, System Log, RMON v1, Support 1,2,3,9 Groups, RMON v2, Support ProbeConfigGroup, BootP/DHCP Client, DHCP server DHCP Auto-configuration, DHCP Relay, DHCP Relay Option 60, 61, 82, DHCPv6 Relay, DHCPv6 Client, Dual Images, Dual Configuration, CPU Monitoring, NTP/SNTP, sFlow, Password Recovery, Password Encryption, DNS Relay, RSPAN, Cable Diagnostics, LLDP, LLDP-MED <sup>2</sup> , Trusted Host
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IEEE	802.1Q VLAN Tagging, 802.1v VLAN Protocol, GVRP, 802.1ab Double VLAN (Port-based Q-in-Q, Selective Q-in-Q), VLAN Translation, MAC-based VLAN, Asymmetric VLAN, ISM-VLAN, 802.1p Quality of Service, 802.1D Spanning Tree Protocol (IEEE802.1D-2004 Edition), 802.1w Rapid Spanning Tree Protocol (IEEE802.1D-2004 Edition), 802.1s Multiple Spanning Tree Protocol (IEEE802.1Q-2005 Edition), 802.3x Flow Control, 802.3ad Link Aggregation, 802.3AB LLDP
Standard Compliance	RFC768 UDP, RFC791 IP, RFC792 ICMPv4, RFC2463, 4443 ICMPv6, RFC4884 Extended ICMP, RFC793 TCP, RFC826 ARP, RFC 1321, 2284, 2865, 2716, 3580, 3748 Extensible Authentication Protocol (EAP), RFC2571 SNMP Framework, RFC2572 SNMP Message Processing and Dispatching, RFC2573 SNMP Applications, RFC2574 User-based Security Model for SNMPv3, RFC1981 Path MTU Discovery for IPv6, RFC2460 IPv6, RFC2461, 4861 IPv6 ND, RFC2462, 4862 IPv6 Stateless Address Auto-configuration, RFC2464 IPv6 over Ethernet and Definition, RFC3513, 4291 IPv6 Addressing Architecture, RFC2893, 4213 IPv4/IPv6 Dual Stack, RFC1112 Host extensions for IP multicasting, RFC2236 IGMPv2, RFC3376 IGMPv3, RFC4605 IGMP/MLD Proxying, RFC1027 ARP Proxy, RFC2475 Differentiated Service, RFC2597 Assured Forwarding PHB Group, RFC2598 An Expedited Forwarding PHB, RFC2697 Single Rate Three Color Marker, RFC2698 Two Rate Three Color Marker, RFC2246 SSL, RFC2138 RADIUS, RFC2139, 2866 RADIUS Accounting, RFC1492 TACACS, RFC2068, 2616 HTTP, RFC854 Telnet, RFC783, 1350 TFTP, RFC2570 SNMP, RFC3164 Syslog, RFC3176 sFlow, RFC951, 1542 BootP, RFC2131 DHCP, RFC1769 Sntp, ITU-T G.8032 Ether Ring Protection Switching

## Software Features

L2 Features	Flow Control, 802.3x Flow Control, HOL Blocking Prevention, Spanning Tree: 802.1D STP, 802.1w RSTP, 802.1s MSTP, BPDU Filtering, Root Restriction, Loopback Detection, ERPS (Ethernet Ring Protection Switching) <sup>1</sup> , 802.3ad Link Aggregation, Max. 8 groups per device / 8 Gigabit ports per group, Port Mirroring: One-to-One, Many-to-One, Flow-based Mirroring, RSPAN Mirroring, L2 Protocol Tunneling, IGMP Snooping: IGMP v1/v2/v3 Snooping, Support 1024 IGMP Groups <sup>1</sup> , Port/host-based IGMP Snooping Fast Leave, Report Suppression, IGMP Proxy, Limited IP Multicast, Up to 24 IGMP filtering profiles, 128 ranges per profile, MLD Snooping: MLD v1/v2 Snooping, Support 1024 MLD Groups <sup>1</sup> , Port/host-based MLD Snooping Fast Leave, Report Suppression
L3 Features	Max. 16 IP Interfaces, ARP Proxy, IPv6 Neighbor Discovery (ND), Inter-VLAN Routing, Max 224 IPv4 routes, Max 96 IPv6 routes, Up to 16 static routing entries <sup>2</sup> , Policy-based Route
Quality of Service (QoS)	<p>Queue Handling</p> <ul style="list-style-type: none"> <li>- Strict</li> <li>- Weighted Round Robin (WRR)</li> <li>- Strict + WRR</li> </ul> <p>CoS Based on</p> <ul style="list-style-type: none"> <li>- Switch Port</li> <li>- VLAN ID</li> <li>- 802.1p Priority Queues</li> <li>- MAC Address</li> <li>- IPv4/v6 Address</li> <li>- DSCP</li> <li>- Protocol Type</li> <li>- IPv6 Traffic Class</li> <li>- IPv6 Flow Label</li> <li>- TCP/UDP Port</li> <li>- User-Defined Packet Content</li> </ul> <p>Support Flowing Actions for Flows</p> <ul style="list-style-type: none"> <li>- Remark 802.1p Priority Tag</li> <li>- Remark TOS-DSCP Tag</li> <li>- Committed Information Rate (CIR), min. granularity 64Kbps</li> <li>- Flow Statistics</li> </ul> <p>SRED Congestion Control</p> <p>Bandwidth Control</p> <ul style="list-style-type: none"> <li>- Port-based (Ingress/Egress, Min. Granularity 64Kbps)</li> <li>-Flow-based (Ingress, Min. Granularity 64Kbps)</li> </ul>

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 <ul style="list-style-type: none"> <li>- Supports 500 Address Binding Entries per Device</li> <li>- Supports DHCPv6 and NDP Snooping (ARP mode)<sup>1</sup></li> <li>- Supports ARP/ACL/Auto (DHCP Snooping) Mode</li> </ul>
	D-Link® Safeguard Engine™
	NetBIOS/NetBEUI Filtering
	DHCP Server Screening
	DHCP Client Filtering
	ARP Spoofing Prevention
	BPDU Attack Protection
	Access Control List (ACL)
ACL based on <ul style="list-style-type: none"> <li style="width: 33%;">- 802.1 Priority</li> <li style="width: 33%;">- VLAN ID</li> <li style="width: 33%;">- MAC Address</li> <li style="width: 33%;">- Ether Type</li> <li style="width: 33%;">- IPv4/v6 Address</li> <li style="width: 33%;">- DSCP</li> <li style="width: 33%;">- Protocol Type</li> <li style="width: 33%;">- TCP/UDP Port Number</li> <li style="width: 33%;">- IPv6 Traffic Class</li> <li style="width: 33%;">- IPv6 Flow Label</li> <li style="width: 33%;">- User Defined packet content</li> </ul>	
ACL Statistics	
Time-based ACL	
VLAN-based ACL	
CPU Interface Filtering	
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-inQ) - Max. 4K VLAN Port-based Q-inQ - Selective Q-inQ
	VLAN Translation
	MAC-based VLAN
	ISM VLAN
	Asymmetric VLAN
	VLAN Trunking
	Voice VLAN
	Guest VLAN
Subnet-based VLAN	

AAA	802.1X	- Authentication Database Failover	- Port/Host-based Access Control	- Dynamic VLAN Assignment
	Web-based Access Control (WAC)	- Authentication Database Failover	- Port/Host-based Access Control	- Dynamic VLAN Assignment
	MAC-based Access Control (MAC)	- Authentication Database Failover	- Port/Host-based Access Control	- Dynamic VLAN Assignment
	RADIUS Accounting			
	RADIUS and TACACS+ Authentication for Switch Access			
	3-Level User Account			
	Microsoft® NAP: 802.1X NAP / DHCP NAP			

Physical & Environmental	DES-3528	DES-3552
Power Consumption	20.5w (max.)	33.1w (max.)
Power Input	100 to 240 VAC, 0.5A, 50 to 60HZ Internal Universal Power Supply	100 to 240 VAC, 0.5A, 50 to 60HZ Internal Universal Power Supply
Redundent Power Supply	Connector for optional external DPS-200	Connector for optional external DPS-200
Dimensions (W x D x H)	17.4" x 8.3" x 1.7" (441mm x 210mm x 44mm)	17.4" x 12.2" x 1.7" (441mm x 310mm x 44mm)
Size	19-inch Standard Rack-Mount Width, 1U Height	19-inch Standard Rack-Mount Width, 1U Height
Weight	5.53 lbs (2.51 kg)	9.01 lbs (4.09 kg)
Ventilation	Fanless	2DC Fans
Acoustics	0dB	35.1db at max. speed
Heat Dissipation	69.9 BTU/hours	112.81 BTU/hour
MTBF	203,785 hours	380,412 hours
Temperature	Operating: 32° to 122°F (0° to 50°C) <sup>4</sup>	Operating: 32° to 122°F (0° to 50°C) <sup>5</sup>
	Storage: -40° to 158°F (-40° to 70°C)	Storage: -40° to 158°F (-40° to 70°C)
Humidity	5% ~ 95% Non-condensing	5% ~ 95% Non-condensing
EMI/EMC	FFC Class A, CE, C-Tick, VCCI Class A	FFC Class A, CE, C-Tick, VCCI Class A
Safety	cUL, LVD, CB	cUL, LVD, CB

## Warranty

Warranty	Lifetime Warranty <sup>2</sup>
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## MIB

MIB	RFC1065, 1066, 1155, 1156, 2578 MIB Structure, RFC1212 MIB Definition, RFC1213 MIBII, RFC1215 MIB Traps Convention, RFC4188 Bridge MIB, RFC1157, 2571~2576 SNMP MIB, RFC1442, 1901~08, 2578 SNMPv2 MIB, RFC1757, 2819 RMON MIB, RFC2021 RMONv2 MIB, RFC1398, 1643, 1650, 2358, 2665 Ether-like MIB, RFC2674, 4363 Q-Bridge/P-Bridge MIB, RFC2233, 2863 IF MIB, RFC2618 RADIUS Authentication Client MIB, RFC2620 RADIUS Accounting Client MIB, RFC2925 Ping MIB, RFC2925 Traceroute MIB, D-Link Private MIB
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## Ordering Information

Part Number	Description
DES-3528	xStack Managed 24-Port 10/100 Stackable L2+ Switch, 4 Gigabit Copper Ports + 2 Combo SFP
DES-3552	xStack Managed 48-Port 10/100 Stackable L2+ Switch, 4 Gigabit Copper Ports + 2 Combo SFP
DEM-310GT	1000BASE-LX SFP Module, Singlemode, up to 10Km
DEM-311GT	1000BASE-SX SFP Module, Multimode, up to 550m
DEM-211	100BASE-FX Multimode LC SFP Transceiver. up to 2Km
DPS-200	Redundant Power Supply Unit, 60 Watt RPSU

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DPS-800	2-Slot RPSU Open Chassis for DPS-200/DPS-500
DPS-900	8-Slot RPSU Open Chassis for DPS-200/DPS-500
DV-600S	D-View 6.0 Network Management Software, Standard Version
DV-600P	D-View 6.0 Network Management Software, Professional Version

1 Feature only available with firmware 2.60. Available for download at supportdlink.com.

2 Feature only available in future firmware release.

3 Lifetime warranty available only in the USA and Canada if purchased on or after March 30, 2009. Visit [www.dlink.com](http://www.dlink.com) for warranty details.

4 Operating temperature is 32°F to 122°F for H/W versions below A3.

5 Operating temperature is 32°F to 122°F for H/W versions below A2.

All references to speed are for comparison purposes only. Product specifications, size, and shape are subject to change without notice, and actual product appearance may differ from that depicted.

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For more information

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