L2+ Unified Wired/Wireless Gigabit Switches

Scalable Unified Wired / Wireless Network Architecture

+ 24 10/100/1000BASE-T Gigabit Ports
+ Up to 48 Wireless AP Direct/Indirect Connections
+ Mixed Wired/Wireless Connection From Any Port
+ 4 Combo SFP for Flexible Fiber Connection
+ 2 Open Slots for Optional 10-Gigabit Attachment to Fiber Backbone [1]
+ Expandable to 4 Peer Switches

Simplified & Resilient Network Deployment

+ 802.3af Power Over Ethernet Simplifies AP Installation
+ Gigabit Connection Ready for Future Wireless Speed Upgrade
+ Redundant Power Supply Support Maximizes Network Uptime

Security Management

+ 64/128/152-Bit WEP Data Encryption
+ WPA/WPA2 Personal
+ WPA/WPA2 Enterprise
+ MAC Authentication
+ Rogue AP Classification & Detection
+ Captive Portal Authentication

Centralized Management of Wireless Network

+ Tracks & Maintains User Authentication As Users Roam Throughout the Network
+ Intelligently Designates Users to Virtual Groups Based on User's Authenticated Identity
+ Provides Scaled, Resilient, Integrated Management Infrastructure
+ Centrally Manages User Authentication/Security Policies
+ Provides Key Management for Each Security Protocol
+ Configures and Controls All Connected Access Points

[1] Available on DWS-3026 only.

D-Link's DWS-3024/3024L/3026 L2+ Unified Wired/Wireless Gigabit Switches are optimized for wireless network deployment in business environments. With these devices, business can install high-performance, secure, manageable and scalable unified wired/wireless LAN switching. Equipped with combo SFP, open slots for optional 10-Gigabit connection[1], Power over Ethernet and redundant power supply (RPS) support, these switches provide enterprises with easy upgrade to next-generation 802.11n wireless LAN, simple deployment of wireless devices regardless of physical locations, and centralized management/policy enforcement of wireless mobility.

Core Units Controlling Entire Wireless Network

The DWS-3024/3024L/3026 switches are the core units that consolidate the security, manage the bandwidth and maintain the intelligence of an entire wireless network. In addition to monitoring users' identities and maintaining their authentication as they roam, these switches can configure and control all aspects of the wireless access points, including their RF channel/power management, wireless traffic segmentation, AP roaming/AP load balancing, rouge AP detection, and AP access security.

Designed for Easy Deployment of High-Performance Wireless LAN

Designed for distributed deployments in the wiring closet, each switch can support up to 24 or 48 wireless access points. AP connection can be directly to the wireless APs switch ports, or indirectly through any LAN switch. With 802.3af PoE integrated into every port, the switch allows connected APs to be located at places difficult to access from AC power sources. Gigabit transmission future-proof hardware protects investments when the network is installed with next-generation higher-speed 802.11n wireless standard devices.

24 Gigabit Ports, No Restriction on Port Usage

Each switch provides 24 10/100/1000BASE-T Gigabit ports and 4 combo SFP slots. Each of the 10/100/1000BASE-T ports can connect to a wireless access point, or to a wired LAN device, such as a server, a network storage device, or simply another LAN switch. The combo SFP allows for flexible fiber connection, while optional 10-Gigabit modules[1] enable bottleneck-free switch-to-switch cascading or attachment to a high-speed fiber backbone.

Scalable Expansion & Unified Wired/Wireless Deployment

Small to Medium Enterprises (SMB) may begin with only one switch to manage their AP or to use for mixed wired/wireless LAN purposes. When the number of AP is augmented, up to 4 switches can be added to form a large mobility domain. With easy expansion, Gigabit speed to support next-generation high-speed AP, and packet routing to support enterprise-wide inter-subnet roaming, the switch provides an architecture that unifies and simplifies an otherwise complex WLAN environment, readily prepares an existing network for future technology upgrades.

RF & Power Management

To minimize network IT personnel's intervention, the switch provides automatic selection of unoccupied or least-used Radio Frequency (RF) channels for each wireless access point to avoid interference with other AP and RF devices. For each AP, it also sets a transmitter output power strong enough for RF signals to reach wireless clients yet weak enough to minimize interference with other wireless devices' RF signals. The switch auto-adjusts the RF channels and transmitter output power of all wireless access points every time when an AP is added to or removed from the network. This automatic adjustment can be programmed to take effect at a certain time or time intervals, minimizing the need for network administrators to manually intervene.

Bandwidth & Power Management

+ Auto-Adjusts RF Channels for AP
+ Provides Fast Intra-Switch Roaming
+ Advanced Inter-Subnet Roaming
+ Auto-Adjusts Transmit Output Power for AP

LAN Management

+ L2+ Features: Spanning Tree, 802.3ad Link Aggregation, Port Mirroring, Jumbo Frames
+ IPv4 Packet Routing
+ QoS With 802.1p Priority Queues, Granular Bandwidth Control
+ LAN Security With ACL, RADIUS, TACACS+ Authentication, DoS Prevention, Broadcast Storm Control

Secure & Versatile Management

+ Web Access Using HTTP
+ Telnet Server/Client
+ SSH v2, SSL v3
+ SNMP v1, v2c, v3, RMON
+ SYSLOG, Dual Image

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Self-Healing and Load Balancing

The switch provides two features designed to increase the resiliency of a wireless network - namely a so-called "self-healing" process, and an AP load balancing function. To make up for a sudden RF signal vacuum created by any "dead" AP (AP with DC power failure, for example), the switch automatically increases the transmitter output power of all neighboring APs to expand their RF coverage, thereby "healing" the network "wound." To ensure continuous connection for current clients, the switch performs load balancing across access points when network traffic reaches a certain threshold, while rejecting new client-to-AP associations to avoid bandwidth overcrowding.

Simplified Configuration & Deployment

Through a centralized management platform, network maintenance and configuration become a more efficient process. By running an Internet browser on any PC connected to the network and typing in an IP address of a managing switch, administrators can view the topology map and pinpoint the locations of the AP and the switch itself. The map uses AP icons on which administrators can click to select, and shows colors to differentiate the different RF channels used by the AP. For quick replacement of a failed AP, administrators can easily locate the AP on the map, swap it with a new one, and apply the same configuration profile to the new unit.

Maximized Wireless Connection

Through centralized RF policies, auto-selection of the least utilized channels and AP load balancing, the DWS-3024/3024L/3026 can effectively manage the wireless bandwidth to optimize WLAN traffic. The switch maintains a centralized database of wireless user's access information such as their MAC addresses and authentication keys. On a network site deployed with multiple peer switches, this information is also swapped among the switches themselves. As wireless users roam around the office using wireless equipment, they may change their connection from AP to AP. By constantly monitoring the APs status, the switch can establish an AP-to-AP roaming for these users without requiring them to re-establishing authentication keys. This fast roaming process results with disruption-free, reliable wireless connectivity crucial for mobile applications such as Wi-Fi IP phone and wireless PDA connection.

Adaptable Wireless

Most of the current wireless LAN controllers' architecture requires wireless traffic to return to the controller for centralized processing, causing unnecessary traffic delay. The DWS-3024/3024L/3026 switches offer administrators additional options. Depending on the wireless application, wireless traffic can either be tunneled back to the switch for better security control, or locally forwarded at the access point for optimal performance. This device offers administrators maximized flexibility with options to tunnel guest traffic to the switch for centralized security control, and forward VoIP traffic directly from the access point for optimal performance.

Maximized Network Security

Each client connecting to the wireless network goes through a strict authentication process to ensure maximum security. Whether the client is an assigned user, a visiting guest, or a client with only department access, the switch protects the entire network infrastructure with numerous security mechanisms, including: WEP data encryption, 802.1X user authentication, and 802.11i standard WPA/WPA2 security, Captive Portal and MAC Authentication.

The switch provides a means to define and detect rouge APs, to preventing illegal intrusion into the internal network. It provides user-based services such as virtual private group (SSID) membership, encryption type, authentication, location tracking and associated network statistics. Authorizations stay with users wherever they roam because all deployed DWS-3024/3024L/3026 switches share stored information, ensuring secure access and connectivity to the right services. In addition to checking the identity of a connecting user from the switch's local database, user authentication policies can be sent to an external RADIUS server for complete verification. This offloading capability ensures that the switch will not be overloaded when numerous clients simultaneously connect to the network.

Maximized Flexibility

In addition to acting as the controller unit in a wireless switching system, the DWS-3024/3024L/3026 can also function as an advanced L2+ wired switch, complete with packet routing, ACL security features, multi-layer QoS, 802.1q VLAN traffic segmentation, IGMP snooping for IP multicast streams, 802.3ad redundant load-sharing Gigabit links, and 10-Gigabit fiber support[1], allowing businesses to totally integrate their enterprise wireless networks with their wired network infrastructure. Businesses contemplating upgrading their current 10/100Mbps desktop connections to Gigabit capability can deploy the DWS-3024/3024L/3026 to take advantage of their ability to flexibly act as a wireless controller or a dedicated, full-featured multi-layer LAN switch, or as a dual-role device.

[1] 10-Gigabit support available on DWS-3026 only.

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Technical Specifications

Device Interfaces	+ 24 10/100/1000BASE-T Gigabit Ports With Integrated 802.3af PoE + 4 Combo SFP Slots + RS-232 Console Port + 2 Open Slots for Optional 10-Gigabit Module[1]
Redundant Power Supply	+ Connector for Optional External DPS-600 RPS
Power over Ethernet	+ Standard: 802.3af + Per Port Voltage Output: 15.4 W + Total Voltage Output: 370 W + Auto Disable If Port Current Over 350mA
Performance	+ Switch Capacity: DWS-3024/DWS-3024L: 48Gbps DWS-3026: 88Gbps + Maximum Forwarding Rate: DWS-3024/DWS-3024L: 35.71Mpps DWS-3026: 65.47Mpps + Switching Method: Store and Forward + Packet Buffer Memory Size: 750KBytes
Flow Control	+ 802.3x Standard in Full Duplex Mode + Back Pressure in Half Duplex Mode
Optional 10-Gigabit Uplink Modules [1]	+ DEM-410X 1-Slot 10-Gigabit XFP Module (For Fiber Backbone Attachment) + DEM-410CX 1-Port 10-Gigabit CX4 Module (For Switch Cascading)
Optional 10-Gigabit XFP Transceivers [1]	+ DEM-421XT XFP Transceiver (10GBASE-SR Standard, Up to 300 m Multi-Mode Fiber Distance, 3.3/5V Operating Voltage) + DEM-422XT XFP Transceiver (10GBASE-LR Standard, Up to 10 km Single-Mode Fiber Distance, 3.3/5V Operating Voltage) + DEM-423XT XFP Transceiver (10GBASE-ER Standard, Up to 40 km Single-Mode Fiber. Distance, 3.3/5V Operating Voltage)
WLAN Management Capability	+ DWS-3024L: Up to 24 AP (Directly connected or indirectly connected through LAN switch) + DWS-3024/DWS-3026: Up to 48 AP (Directly connected or indirectly connected through LAN switch) + Up to 2,048 Wireless Users (1,024 Tunneled Users, 2,048 Non-Tunneled Users)
Roaming	+ Fast Roaming[2] + Intra-Switch/Inter-Switch Roaming + Intra-Subnet/Inter-Subnet Roaming
Access Control & Bandwidth Management	+ Up to 16 SSID per AP (8 SSID per RF Frequency Band) + AP Load Balancing based on the number of users or utilization per AP
Managed AP	+ DWL-3500AP + DWL-8500AP
AP Management	+ AP Auto-Discovery + Remote AP Reboot + AP Monitoring: List Managed AP, Rogue AP, Authentication Failed AP + Client Monitoring: List Clients Associated with Each Managed AP + Ad-hoc Clients Monitoring + AP Authentication Supporting Local Database and External RADIUS Server + Centralized RF/Security Policy Management + Automatic AP RF Channel Adjustment + Automatic AP Transmit Output Power Adjustment

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WLAN Security	+ WPA Personal/Enterprise + WPA2 Personal/Enterprise + 64/128/152-bit WEP Data Encryption + Wireless Station and AP Monitoring on RF Channel, MAC Address, SSID, Time + Rogue and Valid AP Classification Based on MAC Address + Encryption Type Support: WEP, WPA, Dynamic WEP, TKIP, AES-CCMP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-MD5, PEAP-GTC, PEAP-MS-CHAPv2, PEAP-TLS + Captive Portal + MAC Authentication + Station Isolation
L2 Features	+ MAC Address Table Size: 8K Entries + IGMP Snooping: 1K Multicast Groups + Spanning Tree: 8021.D Spanning Tree 802.1w Rapid Spanning Tree 802.1s Multiple Spanning Tree + 802.3ad Link Aggregation: Up to 32 Groups Up to 8 Ports per Group + 802.1ab LLDP + Port Mirroring: One-to-One Port Mirroring Many to One Port Mirroring + Jumbo Frame Size: Up to 9KBytes
VLAN	+ 802.1Q VLAN Tagging + 802.1V + MAC-based VLAN + Double VLAN + VLAN Groups: Up to 3965 + Subnet-based VLAN + GVRP
L3 Features	+ IPv4 Static Route + Floating Static Route + Proxy ARP + Routing Table Size: Up to 128 Static Routes + VRRP
Quality of Service	+ 802.1p Priority Queues (Up to 8 Queues per Port) + CoS Based on: Switch Port, VLAN, DSCP, TCP/UDP Port, TOS, Destination/Source MAC Address, Destination/Source IP Address + Minimum Bandwidth Guarantee per Queue + Traffic Shaping per Port
ACL (Access Control List)	ACL Based on: Switch Port, MAC Address, 802.1p Priority Queues, VLAN, Ethertype, DSCP, IP Address, Protocol Type, TCP/UDP Port
LAN Security	+ RADIUS Authentication for Management Access + TACACS+ Authentication for Management Access + SSH v1, v2 + SSL v3 , TLS v1 + Port Security: 20 MAC Addresses per Port Trap Violation Notification + MAC Filtering + 802.1X Port-Based Access Control and Guest VLAN + Denial of Service Protection + Broadcast Storm Control in Granularity of 1% of Link Speed + Protected Port + DHCP Filtering

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Management Methods	+ Web-Based GUI + Telnet Server: Up to 5 Sessions + TFTP Client + Multiple Configuration Files + BOOTP/DHCP Client + SNTP + Dual Images	+ CLI + Telnet Client + SNMP v1, v2c, v3 + RMON v1: 4 Groups (Statistics, History, Alarms, Events) + DHCP Server + SYSLOG
Diagnostic LEDs	+ Per Device: Power, Console, RPS + Per 10/100/1000BASE-T Port: Link/Activity/Speed, PoE Mode + Per SFP Slot: Link/Activity + Per 10-Gigabit Slot: Link/Activity [1]	
Power	+ AC Input Power: 100 to240 VAC, 50/60 Hz Internal Universal Power Supply + Power Consumption: DWS-3024/3024L: 450 Watts (max. with all PoE ports in operation) DWS-3026: 460 Watts (max. with all PoE ports in operation)	
MTBF	+ DWS-3024/3024L: 174,272 hours + DWS-3026: 173,071 hours	
Heat Dissipation	+ Heat Dissipation: DWS-3024/3024L: 1535.49 BTU/hr DWS-3026: 1569.61 BTU/hr + Ventilation DC Fans: DWS-3024/3024L/3026: 4 40 x 40 mm DC Fans	
Dimensions	+ 440 (W) x 389 (D) x 44 (H) mm (17.32 x 15.31x 1.73 inches) + 19-Inch Standard Equipment Rack Mount Width, 1U Height	
Weight	+ DWS-3024/3024L: 6kg (13.23 lbs) + DWS-3026: 6kg (13.23 lbs)	
Temperature	+ Operating Temperature: 0° to 40° C (32° to 104° F) + Storage Temperature: -10° to 70° C (14° to 158° F)	
Humidity	+ Operating Humidity: 10% to 90% non-condensing + Storage Humidity: 5% to 90% non-condensing	
EMI/EMC Certification	+ FCC Class A + VCCI + C-Tick	+ ICES-003 + CE + EN 60601-1-2
Safety Certification	+ UL/cUL	+ CB

[1] Applicable to DWS-3026 switch only.
[2] To demonstrate fast roaming in a PC, a wireless NIC (Network Interface Card) needs to support the fast roaming feature.