HP 2910 al Switch Series

Data sheet

Product overview

The HP 2910 al Switch Series consists of four switches: the HP 2910-24G al and 2910-24G-PoE+ al Switches with 24 10/100/1000 ports, and the HP 2910-48G al and 2910-48G-PoE+ al Switches with 48 10/100/1000 ports. Each switch has four dual-personality ports for 10/100/1000 or mini-GBIC connectivity. In addition, the 2910 al Switch Series supports up to four optional 10 Gigabit Ethernet (CX4 and/or SFP+) ports, thereby offering the most flexible and easy-to-deploy uplinks in its class. Together with static and RIP IPv4 routing, robust security and management, enterprise-class features, free lifetime warranty, and free software updates, the 2910 series is a cost-effective, scalable solution for customers who are building high-performance networks. These switches can be deployed at enterprise edge and remote branch offices, converged networks, and data center top of rack.

Key features

- High-performance Gigabit Ethernet access switch
- Four optional 10 GbE (CX4 and/or SFP+) ports
- IEEE 802.3af/802.3at functionality (PoE/PoE+)
- Layer 2 and Layer 3 plus static IP and RIP routing
- Lifetime warranty, sFlow, ACLs, and rate limiting

Features and benefits

Quality of Service (QoS)

- **Traffic prioritization (IEEE 802.1p):** allows real-time traffic classification into eight priority levels mapped to eight queues

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers

- **Class of Service (CoS):** sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ

- **Rate limiting:** per-port ingress enforced maximums

Connectivity

- **10 Gbps Ethernet connectivity:** up to four optional and flexible 10-Gigabit ports (CX4 and/or SFP+), with optional interconnect kit for short-distance connectivity

- **IPv6:**
  - **IPv6 host:** allows the switches to be managed and deployed at the edge of IPv6 networks

  - **Dual stack (IPv4/IPv6):** provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols

  - **MLD snooping:** forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network

- **IEEE 802.3af Power over Ethernet (PoE):** provides up to 15.4 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP phones, wireless access points, and security cameras

- **IEEE 802.3at Power Over Ethernet Plus:** provides up to 30 W per port to IEEE 802.3 for PoE/PoE+ powered devices such as video IP phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras

- **Pre-standard PoE support:** detects and provides power to pre-standard PoE devices; see list of supported devices in the product FAQ at www.hp.com/networking/support

- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports

- **Dual-personality functionality:** includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, -LH, 100-FX, 100-BX, and 1000-BX

- **Single IP Address Management:** single IP address management for a virtual stack of up to 16 switches

Performance

- **High-performance architecture:** 128 Gbps switching fabric with up to 95 Mpps (24-port switches) and 176 Gbps switching fabric with up to 131 Mpps (48-port switches)

- **Selectable queue configurations:** allow you to increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

Resiliency and high availability

- **IEEE 802.1s Multiple Spanning Tree:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w

- **IEEE 802.3ad Link Aggregation Protocol (LACP) and HP port trunking:** support up to 24 trunks, each with up to 8 links (ports) per trunk

- **Optional redundant power supply:** supplies backup power in case of power failure (note: HP E620 Redundant/External Power Supply provides only RPS functionality)

Manageability

- **RMON, XRMON, and sFlow:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **Uni-Directional Link Detection (UDLD):** monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices

- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; also provides an audit trail

- **Dual flash images:** provides independent primary and secondary operating system files for backup while upgrading

- **Multiple configuration files:** allow multiple configuration files to be stored to a flash image

- **Friendly port names:** allow assignment of descriptive names to ports

- **Find-Fix-Inform:** finds and fixes common network problems automatically, then informs administrator

- **Software updates:** free downloads from the Web

- **Troubleshooting:** ingress and egress port monitoring enable network problem solving

Layer 2 switching

- **VLAN support and tagging:** supports IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously

- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs

- **Jumbo packet support:** supports up to 9220-byte frame size to improve the performance of large data transfers

- **IEEE 802.1v protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

Layer 3 routing

- **Static IP routing:** provides manually configured routing; includes ECMP capability

- **Routing Information Protocol (RIP):** provides RIPv1 and RIPv2 routing

Security

- **Multiple user authentication methods:**

  – **IEEE 802.1X:** is an industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server

  – **Web-based authentication:** similar to IEEE 802.1X, it provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant

  – **MAC-based authentication:** client is authenticated with the RADIUS server based on the client's MAC address

- **Authentication flexibility:**

  – **Multiple IEEE 802.1X users per port:** provides authentication of up to eight IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication

  – **Concurrent IEEE 802.1X and Web or MAC authentication schemes per port:** switch port will accept any of IEEE 802.1X and either Web or MAC authentications

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number

- **Identity-driven ACL:** enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user

- **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data

- **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks

- **Port monitoring for network threats:** provides sampled port traffic using sFlow technology to the HP Network Immunity Manager (NIM) application for Network Behavior Anomaly Detection (NBAD) analysis to detect and mitigate threats at the port where the threat originated

- **Source-port filtering:** allows only specified ports to communicate with each other

- **RADIUS/TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell:** encrypts all transmitted data for secure remote CLI access over IP networks

- **Secure FTP:** allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator

- **MAC address lockout:** prevents particular configured MAC addresses from connecting to the network

- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon

- **STP BPDU port protection:** blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

- **USB Secure Autorun (requires HP PCM+):** deploys, diagnoses, and updates a switch using a USB flash drive; works with a secure credential to prevent tampering

- **STP Root Guard:** protects the root bridge from malicious attack or configuration mistakes

- **Custom banner:** displays security policy when users log in to the switch

- **Per-port broadcast throttling:** selectively configures broadcast control on heavy traffic port uplinks

Convergence

- **IP multicast snooping and data-driven IGMP:** automatically prevent flooding of IP multicast traffic

- **LLDP-MED (Media Endpoint Discovery):** is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** is an automated device discovery protocol that provides easy mapping of network management applications

- **PoE and PoE+ allocations:** support multiple methods (automatic, IEEE 802.3at dynamic, LLDP-MED fine-grain, IEEE 802.3af device class, or user specified) to allocate and manage PoE/PoE+ power for more efficient energy savings

Monitor and diagnostics

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring

Warranty and support

- **Lifetime warranty:** for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)*

- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to www.hp.com/networking/warranty for details on the support provided and the period during which support is available

- **Software releases:** refer to www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)

Specifications

	HP 2910-24G al Switch (J9145A)	HP 2910-48G al Switch (J9147A)
Ports	20 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	44 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
	4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a mini-GBIC slot (for use with mini-GBIC transceivers)	4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a mini-GBIC slot (for use with mini-GBIC transceivers)
	1 RJ-45 serial console port	1 RJ-45 serial console port
	Supports a maximum of 4 10-GbE ports, with optional module	Supports a maximum of 4 10-GbE ports, with optional module
Physical characteristics		
Dimensions	14.4(d) x 17.4(w) x 1.73(h) in. (36.58 x 44.2 x 4.4 cm) (1U height)	14.4(d) x 17.42(w) x 1.73(h) in. (36.58 x 44.25 x 4.4 cm) (1U height)
Weight	10.92 lb. (4.95 kg)	11.2 lb. (5.08 kg)
Memory and processor		
Processor	Dual ARM1156T2S @ 515 MHz, 4 MB flash, 1 GB compact flash, 512 MB SDRAM; packet buffer size: 6 MB	Dual ARM1156T2S @ 515 MHz, 4 MB flash, 1 GB compact flash, 512 MB SDRAM; packet buffer size: 6 MB
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
Performance		
1000 Mb Latency	< 2.9 μs (FIFO 64-byte packets)	< 2.9 μs (FIFO 64-byte packets)
10 Gbps Latency	< 1.3 μs (FIFO 64-byte packets)	< 1.3 μs (FIFO 64-byte packets)
Throughput	up to 95 million pps (64-byte packets)	up to 131 million pps
Switching capacity	128 Gbps	176 Gbps
Routing table size	2000 entries	2000 entries
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft. (3 km)	up to 10,000 ft. (3 km)
Acoustic	Power: 53.5 dB, Pressure: 39.4 dB; DIN 45635T.19 per ISO 7779	Power: 53.5 dB, Pressure: 39.4 dB; DIN 45635T.19 per ISO 7779
Electrical characteristics		
		Achieved Miercom Certified Green Award
Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
Maximum heat dissipation	279 BTU/hr (295 kJ/hr)	356 BTU/hr (376 kJ/hr)
Voltage	100-127/200-240 VAC	100-127/200-240 VAC
Current	1.7/0.9 A	2.1/1.1 A
Idle power	49 W	64 W
Maximum power rating	82 W	105 W
Frequency	50/60 Hz	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; EN 60825; UL 60950	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; EN 60825; UL 60950
Emissions	FCC part 15 Class A; EN 55022/CISPR-22 Class A; VCCI Class A	FCC part 15 Class A; EN 55022/CISPR-22 Class A; VCCI Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV / 2 kV AC, 1 kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV / 2 kV AC, 1 kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m	IEC 61000-4-8; 1 A/m
Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
Harmonics	IEC 61000-3-2	IEC 61000-3-2

Specifications (continued)

	HP 2910-24G al Switch (J9145A)	HP 2910-48G al Switch (J9147A)
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; HP PCM; command-line interface; Web browser; out-of-band management (serial RS-232C)	HP PCM+; HP PCM; command-line interface; Web browser; out-of-band management (serial RS-232C)
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E)	3-year, 4-hour onsite, 13x5 coverage for hardware (H4496E)
	3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E)	3-year, 4-hour onsite, 24x7 coverage for hardware (H2893E)
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6304E)	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6319E)
	3-year, 24x7 SW phone support, software updates (UE262E)	3-year, 24x7 SW phone support, software updates (UE264E)
	1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR889E)	1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR894E)
	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR890E)	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR895E)
	1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR891E)	Installation with minimum configuration, system-based pricing (U4826E)
	Installation with minimum configuration, system-based pricing (U4826E)	Installation with HP-provided configuration, system-based pricing (U4830E)
	Installation with HP-provided configuration, system-based pricing (U4830E)	4-year, 4-hour onsite, 13x5 coverage for hardware (UR884E)
	4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E)	4-year, 4-hour onsite, 24x7 coverage for hardware (UR885E)
	4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E)	4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR886E)
	4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E)	4-year, 24x7 SW phone support, software updates (UR887E)
	4-year, 24x7 SW phone support, software updates (UR871E)	5-year, 4-hour onsite, 13x5 coverage for hardware (UR888E)
	5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E)	5-year, 4-hour onsite, 24x7 coverage for hardware (UR889E)
	5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E)	5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR890E)
	5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR874E)	5-year, 24x7 SW phone support, software updates (UR891E)
	5-year, 24x7 SW phone support, software updates (UR875E)	3 Yr 6 hr Call-to-Repair Onsite (UW365E)
	3 Yr 6 hr Call-to-Repair Onsite (UW356E)	4 Yr 6 hr Call-to-Repair Onsite (UW366E)
	4 Yr 6 hr Call-to-Repair Onsite (UW357E)	5 Yr 6 hr Call-to-Repair Onsite (UW367E)
	5 Yr 6 hr Call-to-Repair Onsite (UW358E)	1-year, 6 hour Call-To-Repair Onsite for hardware (HR898E)
	1-year, 6 hour Call-To-Repair Onsite for hardware (HR893E)	1-year, 24x7 software phone support, software updates (HR897E)
	1-year, 24x7 software phone support, software updates (HR892E)	1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR896E)
	1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS610E)	1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS618E)
	1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS611E)	1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS619E)
	3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS612E)	3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS620E)
	3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS613E)	3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS621E)
	4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS614E)	4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS622E)
	4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS615E)	4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS623E)
	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS616E)	5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS624E)
	5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS617E)	5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS625E)
	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

	HP 2910-24G al Switch (J9145A)		HP 2910-48G al Switch (J9147A)

Standards and protocols
(applies to all products in series)

Device management
RFC 1591 DNS (client)
HTML and telnet management

General protocols
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 3046 DHCP Relay Agent Information Option

IP multicast
RFC 3376 IGMPv3 (host joins only)

IPv6
RFC 1981 IPv6 Path MTU Discovery
RFC 2460 IPv6 Specification
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Remote Operations MIB (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client only)
RFC 3513 IPv6 Addressing Architecture
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 2021 RMONv2 MIB
RFC 2613 SMON MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2863 The Interfaces Group MIB

RFC 2925 Ping MIB

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

QoS/CoS
RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)
Ingress Rate Limiting

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2138 RADIUS Authentication
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)

Specifications (continued)

	HP 2910-24G-PoE+ al Switch (J9146A)	HP 2910-48G-PoE+ al Switch (J9148A)
Ports	20 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	44 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
	4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a mini-GBIC slot (for use with mini-GBIC transceivers)	4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a mini-GBIC slot (for use with mini-GBIC transceivers)
	1 RJ-45 serial console port	1 RJ-45 serial console port
	Supports a maximum of 4 10-GbE ports, with optional module	Supports a maximum of 4 10-GbE ports, with optional module
Physical characteristics		
Dimensions	14.4(d) x 17.4(w) x 1.73(h) in. (36.58 x 44.2 x 4.39 cm) (1U height)	14.4(d) x 17.42(w) x 1.73(h) in. (36.58 x 44.25 x 4.39 cm) (1U height)
Weight	12.34 lb. (5.6 kg)	12.96 lb. (5.88 kg)
Memory and processor		
Processor	Dual ARM1156T2S @ 515 MHz, 4 MB flash, 1 GB compact flash, 512 MB SDRAM; packet buffer size: 6 MB	Dual ARM1156T2S @ 515 MHz, 4 MB flash, 1 GB compact flash, 512 MB SDRAM; packet buffer size: 6 MB
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
Performance		
1000 Mb Latency	< 2.9 μs (FIFO)	< 2.9 μs (FIFO)
10 Gbps Latency	< 1.3 μs (FIFO)	< 1.3 μs (FIFO)
Throughput	up to 95 million pps	up to 131 million pps
Switching capacity	128 Gbps	176 Gbps
Routing table size	2000 entries	2000 entries
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft. (3 km)	up to 10,000 ft. (3 km)
Acoustic	Power: 51.5 dB, Pressure: 38.1 dB; DIN 45635T.19 per ISO 7779	Power: 51.5 dB, Pressure: 38.1 dB; DIN 45635T.19 per ISO 7779
Electrical characteristics		
Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
Maximum heat dissipation	447 BTU/hr (472 kJ/hr), max. using PoE+	667 BTU/hr (704 kJ/hr), max. using PoE+
Voltage	100-127/200-240 VAC	100-127/200-240 VAC
Current	6.1/3.1 A	6.4/3.2 A
Idle power	65 W	89 W
Maximum power rating	490 W	556 W
PoE power	382 W	382 W
Frequency	50/60 Hz	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).
Safety	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; EN 60825; UL 60950	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; EN 60825; UL 60950
Emissions	FCC part 15 Class A; EN 55022/CISPR-22 Class A; VCCI Class A	FCC part 15 Class A; EN 55022/CISPR-22 Class A; VCCI Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV / 2 kV AC, 1 kV signal, 0.5 kV DC	IEC 61000-4-5; 1 kV / 2 kV AC, 1 kV signal, 0.5 kV DC
Conducted	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m	IEC 61000-4-8; 1 A/m

Specifications (continued)

	HP 2910-24G-PoE+ al Switch (J9146A)	HP 2910-48G-PoE+ al Switch (J9148A)
Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; HP PCM; command-line interface; Web browser; out-of-band management (serial RS-232C)	HP PCM+; HP PCM; command-line interface; Web browser; out-of-band management (serial RS-232C)
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR889E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR890E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR891E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR868E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR869E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR870E) 4-year, 24x7 SW phone support, software updates (UR871E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR872E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR873E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR874E) 5-year, 24x7 SW phone support, software updates (UR875E) 3 Yr 6 hr Call-to-Repair Onsite (UW356E) 4 Yr 6 hr Call-to-Repair Onsite (UW357E) 5 Yr 6 hr Call-to-Repair Onsite (UW358E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR893E) 1-year, 24x7 software phone support, software updates (HR892E) 1-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS610E) 1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS611E) 3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS612E) 3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS613E) 4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS614E) 4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS615E) 5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS616E) 5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS617E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	3-year, 4-hour onsite, 13x5 coverage for hardware (H4496E) 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6319E) 3-year, 24x7 SW phone support, software updates (UE264E) 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR894E) 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR895E) Installation with minimum configuration, system-based pricing (U4826E) Installation with HP-provided configuration, system-based pricing (U4830E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR884E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR885E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR886E) 4-year, 24x7 SW phone support, software updates (UR887E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR888E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR889E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR890E) 5-year, 24x7 SW phone support, software updates (UR891E) 3 Yr 6 hr Call-to-Repair Onsite (UW365E) 4 Yr 6 hr Call-to-Repair Onsite (UW366E) 5 Yr 6 hr Call-to-Repair Onsite (UW367E) 1-year, 6 hour Call-To-Repair Onsite for hardware (HR898E) 1-year, 24x7 software phone support, software updates (HR897E) 1-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support and software updates (HR896E) 1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS618E) 1-year, 24x7 software phone support, software updates + 4 hour hardware exchange (HS619E) 3-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS620E) 3-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS621E) 4-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS622E) 4-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS623E) 5-year, 24x7 software phone support, software updates + Next Business Day Hardware Exchange (HS624E) 5-year, 24x7 software phone support, software updates + 4 hour Hardware Exchange (HS625E) Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Specifications (continued)

	HP 2910-24G-PoE+ al Switch (J9146A)	HP 2910-48G-PoE+ al Switch (J9148A)

Standards and protocols
(applies to all products in series)

Device management
RFC 1591 DNS (client)
HTML and telnet management

General protocols
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 3046 DHCP Relay Agent Information Option

IP multicast
RFC 3376 IGMPv3 (host joins only)

IPv6
RFC 1981 IPv6 Path MTU Discovery
RFC 2460 IPv6 Specification
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Remote Operations MIB (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client only)
RFC 3513 IPv6 Addressing Architecture
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 2021 RMONv2 MIB
RFC 2613 SMON MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2863 The Interfaces Group MIB

RFC 2925 Ping MIB

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

QoS/CoS
RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)
Ingress Rate Limiting

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2138 RADIUS Authentication
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)

HP 2910 al Switch Series accessories

Modules

HP 2-port 10GbE CX4 al Module (J9149A)
HP 2-port 10GbE SFP+ al Module (J9008A)
HP 10GbE al Switch Interconnect Kit (J9165A)

Transceivers

HP X111 100M SFP LC FX Transceiver (J9054C)
HP X112 100M SFP LC BX-D Transceiver (J9099B)
HP X112 100M SFP LC BX-U Transceiver (J9100B)
HP X132 10G SFP+ LC SR Transceiver (J9150A)
HP X132 10G SFP+ LC LR Transceiver (J9151A)
HP X132 10G SFP+ LC LRM Transceiver (J9152A)
HP X121 1G SFP LC LH Transceiver (J4860C)
HP X121 1G SFP LC SX Transceiver (J4858C)
HP X121 1G SFP LC LX Transceiver (J4859C)
HP X122 1G SFP LC BX-D Transceiver (J9142B)
HP X122 1G SFP LC BX-U Transceiver (J9143B)

Cables

HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)
HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)
HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)
HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
NEW HP 0.5 m PremierFlex OM3+ LC/LC Optical Cable (BK837A)
NEW HP 1 m PremierFlex OM3+ LC/LC Optical Cable (BK838A)
NEW HP 2 m PremierFlex OM3+ LC/LC Optical Cable (BK839A)
NEW HP 5 m PremierFlex OM3+ LC/LC Optical Cable (BK840A)
NEW HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A)
NEW HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A)
NEW HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A)
HP BLc SFP+ 0.5m 10GbE Copper Cable (487649-B21)
HP BLc SFP+ 1m 10GbE Copper Cable (487652-B21)
HP BLc SFP+ 3m 10GbE Copper Cable (487655-B21)
HP BLc SFP+ 5m 10GbE Copper Cable (537963-B21)
HP BLc SFP+ 7m 10GbE Copper Cable (487658-B21)

EPS/RPS

HP 620 Redundant/External Power Supply (J8696A)
HP 630 Redundant and/or External Power Supply (J9443A)

Mounting Kit

HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)

Software

HP Identity Driven Manager v3 Software with 500-user License (J9438A)
HP Identity Driven Manager v3 additional 1000-user License (J9440A)
HP Identity Driven Manager v3 Software with Unlimited-user License (J9439A)
NEW HP PCM+ IDM v4 S/W Mod w/500-user Lic (J9752A)
NEW HP PCM+ IDM v4 S/W Mod w/Unltd-user Lic (J9753A)
NEW HP PCM+ IDM v4 add 1000-user Lic (J9754A)

Products within this series have achieved sufficient scores in each of the rated criteria to achieve the Miercom Certified Green distinction Award. See the Specifications section of this series for more information.

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