HP E4500 Switch Series

Data sheet

Product overview

The HP E4500 Switch Series are managed, stackable 10/100 Ethernet switches that provide secure, flexible LAN connectivity for enterprise and branch office networks. HP E4500 switches offer Layer 2 switching and dynamic Layer 3 routing, as well as robust security, Quality of Service (QoS), and management features to deliver intelligent edge connectivity for essential business applications. Dual-personality ports allow for both copper and fiber Gigabit uplink connections. The switch supports true stacking with the ability to stack up to eight switch units—384 10/100 ports per stack—with single IP management and distributed aggregated links for high uplink resiliency.

Key features

- Enterprise-class security features
- Advanced access and distribution
- Easily add switches when needed
- Stack up eight units—or cluster up to 32 devices
- IEEE 802.1X network access control

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

- **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:** sets per-port ingress enforced maximums and per-port, per-queue guaranteed minimums

Management

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

- **Uni-Directional Link Detection (UDLD):** monitors cable between two switches and shuts down the ports on both ends if the cable is broken, turning the bi-directional link into uni-directional; this prevents network problems such as loops

- **Secure Web GUI:** provides a secure, easy-to-use graphical interface for configuring the module via HTTPS

- **Command-line interface (CLI):** provides a secure, easy-to-use command-line interface for configuring the module via SSH or a switch console; provides direct real-time session visibility

- **SNMPv1, v2c, and v3:** facilitate centralized discovery, monitoring, and secure management of networking devices

- **3Com-heritage Comware V3 Operating System:** CLI and Web user interface in common with HP E4XXX and E55XX series switches

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

Connectivity

- **Gigabit Uplinks:** E4500-24 model has two dual-personality ports for either 10/100/1000 or mini-GBIC SFP connectivity; other models have dual-personality dual mini-GBIC Gigabit SFP ports and ship with two 1000Base-T SFP transceivers for copper Ethernet connections

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

- **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

Manageability

- **RMON (remote monitoring):** provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events

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

- **Full-featured console:** provides complete control of the switch with a familiar command-line interface (CLI)

- **Web interface:** allows configuration of the switch from any Web browser on the network

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

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

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

- **Virtual stacking capability:** single IP address management for a virtual stack of up to 255 Comware-based 3Com legacy devices, including HP E4XXX and E55XX series switches

- **Advanced stacking:** locally connect up to nine E4500 switches using Gigabit ports and manage as a single entity; improves resiliency by spreading aggregated links across multiple stacked units

- **IPv6 management:** future-proof networking as the switch is capable of being managed whether the attached network is running IPv4 or IPv6; supports pingv6, tracertv6, Telnetv6, TFTPv6, DNSv6, and ARPv6

Layer 2 switching

- **VLAN support and tagging:** support IEEE 802.1Q, with 4094 simultaneous VLAN IDs

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

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

- **IEEE 802.1ad QinQ:** increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network

Layer 3 routing

- **Layer 3 IP routing :** Static IP routing, RIPv1, and RIPv2 provide routing at media speed

Security

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

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

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote command-line interface (CLI) access over IP networks

- **Secure Web management with HTTPS and SSL:** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **IEEE 802.1X and RADIUS network logins:** control port-based access for authentication and accountability

- **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

- **Secure management access:** securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3

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

- **Automatic VLAN assignment:** automatically assigns users to the appropriate VLAN based on their identity and location and the time of day

- **Management password:** provides security so that only authorized access to the Web browser interface is allowed

Convergence

- **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

- **Automated voice VLAN assignment:** recognizes IP phones and automatically assigns voice traffic to a dedicated VLAN for IP phones

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)

*Hardware warranty replacement for as long as you own the product, with next business day advance replacement (available in most countries) with a five-year hardware warranty replacement for the disk drive included with HP AllianceONE Services zl Module, HP Threat Management Services zl Module, HP PCM+ Agent with AllianceONE Services zl Module, and HP E-MSM765 zl Mobility Controller. For details, refer to the HP Software License, Warranty, and Support booklet at www.hp.com/networking/warranty.

HP E4500 Switch Series

Specifications

	HP E4500-48-PoE Switch (JE048A)	HP E4500-24-PoE Switch (JE047A)
Ports	48 RJ-45 auto-sensing 10/100 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3af PoE); Duplex: half or full	24 RJ-45 auto-sensing 10/100 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3af PoE); Duplex: half or full
	2 dual-personality ports; 10Base-T/100Base-TX/1000Base-T or 1000Base-X (SFP) ports	2 dual-personality ports; 10Base-T/100Base-TX/1000Base-T or 1000Base-X (SFP) ports
	1 RJ-45 serial console port	1 RJ-45 serial console port
Physical characteristics		
Dimensions	16.8(d) x 17.3(w) x 1.7(h) in. (42.67 x 43.94 x 4.32 cm) (1U height)	16.8(d) x 17.3(w) x 1.7(h) in. (42.67 x 43.94 x 4.32 cm) (1U height)
Weight	13.9 lb. (6.31 kg)	13.9 lb. (6.31 kg)
Memory and processor		
	Broadcom 5836, 64 MB SDRAM, 8 MB flash; packet buffer size: 32 MB	Broadcom 5836, 64 MB SDRAM, 8 MB flash; packet buffer size: 32 MB
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included)	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included)
Performance		
Throughput	10.1 million pps	6.5 million pps
Routing/Switching capacity	13.6 Gbps	8.8 Gbps
Routing table size	2,000 entries	2,000 entries
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 95%, non-condensing	10% to 95%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	10% to 95%, non-condensing	10% to 95%, non-condensing
Electrical characteristics		
Voltage	100-240 VAC	100-240 VAC
DC Voltage	-48 to -60 VDC	-48 to -60 VDC
Frequency	50 / 60 Hz	50 / 60 Hz
Safety	UL 60950; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EU RoHS Compliant	UL 60950; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EU RoHS Compliant
Emissions	FCC part 15 Class A; VCCI Class A; CISPR 22 Class A; EN 55024; EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A	FCC part 15 Class A; VCCI Class A; CISPR 22 Class A; EN 55024; EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A
Management	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet; IEEE 802.3 Ethernet MIB
Notes		Two pairs of Gigabit SFP ports operate as combination ports. Unit ships with two 1000Base-T SFP transceivers for copper connections.
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (UV834E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV837E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UV840E) 3-year, 24x7 SW phone support, software updates (UV843E) Installation with minimum configuration, system-based pricing (UW451E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV835E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV838E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV841E) 4-year, 24x7 SW phone support, software updates (UV844E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV836E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV839E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV842E) 5-year, 24x7 SW phone support, software updates (UV845E) 3 Yr 6 hr Call-to-Repair Onsite (UW434E) 4 Yr 6 hr Call-to-Repair Onsite (UW435E) 5 Yr 6 hr Call-to-Repair Onsite (UW436E) 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 (UV834E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UV837E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UV840E) 3-year, 24x7 SW phone support, software updates (UV843E) Installation with minimum configuration, system-based pricing (UW451E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UV835E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UV838E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV841E) 4-year, 24x7 SW phone support, software updates (UV844E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UV836E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UV839E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UV842E) 5-year, 24x7 SW phone support, software updates (UV845E) 3 Yr 6 hr Call-to-Repair Onsite (UW434E) 4 Yr 6 hr Call-to-Repair Onsite (UW435E) 5 Yr 6 hr Call-to-Repair Onsite (UW436E) 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 E4500-48-PoE Switch (JE048A)		HP E4500-24-PoE Switch (JE047A)	

Standards and protocols
(applies to all products in series)

Device management
RFC 1157 SNMPv1/v2c
Web UI

General protocols
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s (MSTP)
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.1X PAE
IEEE 802.3 Type 10BASE-T
IEEE 802.3ab 1000BASE-T
IEEE 802.3ad Link Aggregation (LAG)
IEEE 802.3af Power over Ethernet
IEEE 802.3i 10BaseT
IEEE 802.3u 100BASE-X
IEEE 802.3x Flow Control
IEEE 802.3z 1000BASE-X
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1305 NTPv3
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 1723 RIP v2
RFC 2131 DHCP

RFC 2284 EAP over LAN
RFC 2453 RIPv2
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 3768 VRRP
RFC 4675 RADIUS VLAN & Priority

IP multicast
RFC 2236 IGMPv2

MIBs
IEEE8021-PAE-MIB
IEEE8023-LAG-MIB
RFC 1212 Concise MIB Definitions
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 1850 OSPFv2 MIB
RFC 1907 SNMPv2 MIB
RFC 2011 SNMPv2 MIB for IP
RFC 2013 SNMPv2 MIB for UDP
RFC 2021 RMONv2 MIB
RFC 2233 Interface MIB
RFC 2571 SNMP Framework MIB
RFC 2572 SNMP-MPD MIB
RFC 2573 SNMP-Notification MIB
RFC 2573 SNMP-Target MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2667 IP Tunnel MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB

RFC 2688 MAU-MIB
RFC 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2819 RMON MIB
RFC 2925 Ping MIB
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3418 MIB for SNMPv3
RFC 3621 Power Ethernet MIB
RFC 3826 AES for SNMP's USM MIB
RFC 4133 Entity MIB (Version 3)
LLDP-EXT-DOT1-MIB
LLDP-EXT-DOT3-MIB
LLDP-MIB

Network management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2571 SNMP Management Frameworks
RFC 2572 SNMPv3 Message Processing
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2865 RADIUS (client only)
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

5

HP E4500 Switch Series

Specifications

	HP E4500-48 Switch (JE046A)	HP E4500-24 Switch (JE045A)
Ports	48 RJ-45 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full	24 RJ-45 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full
	2 dual-personality ports; 10Base-T/100Base-TX/1000Base-T or 1000Base-X (SFP) ports	2 dual-personality ports; 10Base-T/100Base-TX/1000Base-T or 1000Base-X (SFP) ports
	1 RJ-45 serial console port	1 RJ-45 serial console port
Physical characteristics		
Dimensions	10.6(d) x 17.3(w) x 1.7(h) in. (26.92 x 43.94 x 4.32 cm) (1U height)	10.6(d) x 17.3(w) x 1.7(h) in. (26.92 x 43.94 x 4.32 cm) (1U height)
Weight	7.3 lb. (3.31 kg)	7.3 lb. (3.31 kg)
Memory and processor		
	Broadcom 5836, 64 MB SDRAM, 8 MB flash; packet buffer size: 32 MB	Broadcom 5836, 64 MB SDRAM, 8 MB flash; packet buffer size: 32 MB
Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included)	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included)
Performance		
Throughput	10.1 million pps	6.5 million pps
Routing/Switching capacity	13.6 Gbps	8.8 Gbps
Routing table size	2,000 entries	2,000 entries
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 95%, non-condensing	10% to 95%, non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	10% to 95%, non-condensing	10% to 95%, non-condensing
Electrical characteristics		
Voltage	100-240 VAC	100-240 VAC
DC Voltage	-48 to -60 VDC	-48 to -60 VDC
Frequency	50 / 60 Hz	50 / 60 Hz
Safety	UL 60950; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EU RoHS Compliant	UL 60950; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EU RoHS Compliant
Emissions	FCC part 15 Class A; VCCI Class A; CISPR 22 Class A; EN 55024; EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A	FCC part 15 Class A; VCCI Class A; CISPR 22 Class A; EN 55024; EN 55022 1998 Class A; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A
Management	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet; IEEE 802.3 Ethernet MIB	IMC - Intelligent Management Center; command-line interface; Web browser; out-of-band management (serial RS-232C); SNMP Manager; Telnet; IEEE 802.3 Ethernet MIB
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IEEE 802.1X PAE
IEEE 802.3 Type 10BASE-T
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LLDP-MIB

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RFC 2865 RADIUS (client only)
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

HP E4500 Switch Series accessories

Transceivers

HP X124 1G SFP LC SX Transceiver (JD493A)

HP X125 1G SFP LC SX Transceiver (JD118B)

HP X120 1G SFP LC LX Transceiver (JD119B)

HP X125 1G SFP LC LH70 Transceiver (JD063B)

HP X125 1G SFP RJ45 T Transceiver (JD089B)

HP X110 100M SFP LC FX Dual Mode Transceiver (JD497A)

HP X110 100M SFP LC LX10 Transceiver (JD498A)

Cables

NEW HP .5 m Multimode OM3 LC/LC Optical Cable (AJ833A)

NEW HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)

NEW HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)

NEW HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)

NEW HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)

NEW HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)

NEW HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)

NEW HP 0.5m PremierFlex OM3+ LC/LC Optical Cable (BK837A)

To learn more, visit www.hp.com/networking