

Overview

HP WX5000 Access Controller Series (Retired)

Models

HP WX5002 Access Controller

JD447B

HP WX5004 Access Controller

JD448B

Key features

- Flexible forwarding modes
- Carrier-Class Wireless User Access Control
- High reliability
- IPv4/IPv6 dual stack
- End-to-end QoS

Product overview

The HP WX5000 Access Controller Series features large capacity, high reliability, and rich services, and offers strong wired and wireless data processing capacity. The WX5000 series provides refined user control and management, a comprehensive RF management and security mechanism, fast roaming, strong QoS and IPv4/IPv6 features, and powerful WLAN access control functions. Designed for WLAN access of enterprise networks and metropolitan area networks (MANs), the WX5000 series provides an ideal access control solution for the WLAN access of large enterprise campus networks, wireless MAN coverage, and hotspot coverage. The WX5000 series include two models: the WX5002 and WX5004 access controllers. A standard WX5002 access controller supports up to 32 APs, and can support up to 64 with license upgrades. A standard WX5004 access controller supports 64 APs, and can support up to 256 with license upgrades.

Features and benefits

Quality of Service (QoS)

- **End-to-end QoS:** developed based on the Comware V5 platform, the WX5000 access controllers support not only the DiffServ standard but also the IPv6 QoS; the QoS DiffServ model includes traffic classification and traffic policing, completely implementing the six groups of services (EF, AF1 through AF4, and BE); this enables ISPs to provide differentiated services for users, making the Internet a true integrated network carrying data, voice, and video services at the same time
- **IEEE 802.1p prioritization:** delivers data to devices based on the priority and type of traffic
- **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

Management

- **Automatic radio power adjustment:** automatic AP power adjustment features analyze user access status in real time, adapting power requirements based on environmental changes and providing high-quality user access signal coverage
- **Automatic radio channel adjustment:** intelligent channel switching and real-time interference detection provide the allocation of a high-quality channel to each AP, reducing adjacent channel interference
- **Load balancing:** intelligent load sharing analyzes the locations of wireless clients in real time, providing high-quality client throughput regardless of location or number of online sessions
- **Rogue AP detection:** regular scans for rogue APs help confirm that the network is secure
- **Enterprise network management:** is supported by the Web-based, enterprise-class HP Intelligent Management Center (IMC) network management platform and Wireless Service Management (WSM), which effectively integrate traditionally disparate management tools into one easy-to-use interface
- **Secure controller management:** securely manages the controller from a single location with IMC or any other SNMP management station; controller supports SNMPv3 as well as SSH and SSL for secure CLI and Web management

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- **AAA server:** uses an embedded authentication server or external AAA server for local users

Connectivity

- **IPv6:** IPv6 host enables controllers to be managed and deployed at the IPv6 network's edge; dual stack (IPv4 and IPv6) transitions from IPv4 to IPv6, supporting connectivity for both protocols; MLD snooping forwards IPv6 multicast traffic to the appropriate interface, preventing traffic flooding; IPv6 ACL/QoS supports ACL and QoS for IPv6 network traffic
- **IEEE 802.11h ITU compliant:** employs Dynamic Frequency Selection (DFS) to automatically select another channel and adjust transmit power to reduce interference with systems such as radar, if it is detected on that same channel

Performance

- **Flexible forwarding modes:** the WX5000 access controller supports both distributed forwarding mode and centralized forwarding mode, allowing you to set SSID-based forwarding type as needed; in a wireless network of centralized forwarding mode, all wireless traffic is sent to an AC for processing; if there is a wireless network where APs are deployed at branches, ACs are deployed at the headquarters, and APs and ACs are connected over a WAN, the distributed mode will be necessary
- **Carrier-Class Wireless User Access Control:** user-based access control is a feature of the WX5000 access controller; for different application scenarios, you can configure different items in a user profile, such as Committed Access Rate (CAR) and QoS policies
- **Fast roaming:** supports Layer 3 roaming and fast roaming, satisfying the most demanding voice service requirements
- **High performance:** robust switching capacity and wire-speed processing provide powerful forwarding capacity for medium and large enterprise-sized WLANs

Resiliency and high availability

- **High reliability:** the 1+1 redundancy configuration of the WX5000 access controller supports subsecond-level failure detection; Fit APs establish AP-AC tunnel links with both ACs, but only the links to the active AC are active; when the active AC fails, the heartbeat mechanism between the two ACs helps ensure that the standby AC can sense the failure in subsecond level and then inform APs to use links to it, providing service continuity

Layer 2 switching

- **VLAN support and tagging:** support IEEE 802.1Q, with 4,094 simultaneous VLAN IDs
- **Spanning Tree:** fully supports standard IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol
- **Jumbo packet support:** supports up to a 4 KB frame size to improve the performance of large data transfers

Standards

- **Latest high-speed wireless standards:** when used with IEEE 802.11n-based APs, provides wireless access six times that of traditional IEEE 802.11a/b/g networks, resulting in expanded coverage and more efficient support for wireless multimedia applications

Security

- **IEEE 802.1X and RADIUS network logins:** control port-based access for authentication and accountability
- **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
- **Choice of IEEE 802.11i, WPA2, or WPA:** locks out unauthorized wireless access by authenticating users prior to granting network access; robust Advanced Encryption Standard (AES) or Temporal Key Integrity Protocol (TKIP) encryption secures

Overview

the data integrity of wireless traffic

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote CLI access over IP networks
- **Media access control (MAC) authentication:** provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication
- **Secure user isolation:** virtual AP services enable the network administrator to provide specific services for different user groups, improving bandwidth and system resources, and simplifying network maintenance and management
- **Secure access by location:** location AP-based user access control helps ensure that wireless users can access and authenticate only to preselected APs, enabling system administrators to control the locations where a wireless user can access the network
- **Endpoint Admission Defense:** integrated wired and wireless Endpoint Admission Defense (EAD) helps ensure that only wireless clients who comply with mandated enterprise security policies can access the network, reducing threat levels by infected wireless clients and improving the overall security of the wireless network
- **HTTPS management:** provides secure Web management
- **Public Key Infrastructure (PKI):** is used to control access

Scalability

- **Pay as you grow:** license upgrades allow you to increase support for additional access points without the need to buy additional costly hardware and use additional valuable space in a chassis

QuickSpecs

HP WX5000 Access Controller Series

Technical Specifications

HP WX5002 Access Controller (JD447B)

Ports	2 dual-personality ports; (2 GbE 10/100/1000Base-T and 1000Base-X combination ports) 1 RJ-45 serial console port	
Physical characteristics	Dimensions	16.93(d) x 17.32(w) x 1.72(h) in. (43 x 44 x 4.36 cm) (1U height)
	Weight	16.31 lb. (7.4 kg), Fully loaded two power supplies
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	
Memory and processor	Processor	Quad-core @ 800 MHz, 256 MB compact flash, 1 GB DDR2 DIMM
Mounting	EIA-standard 19 in. telco rack or equipment cabinet (hardware included)	
Performance	Switch fabric speed	4 Gbps
	MAC address table size	4000 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Maximum heat dissipation	222 BTU/hr (234.21 kJ/hr)
	Voltage	100-240 VAC
	DC Voltage	-48 VDC to -60 VDC
Safety	Maximum power rating	67.7 W
	Frequency	50 / 60 Hz
	UL 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; GOST; C-Tick; NOM; IEC 60950-1 (with CB report)	
Emissions	EN 55022; VCCI; ICES-003; AS/NZS CISPR 22; EN 300 386; FCC Part 15; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC	
Immunity	Generic	ETSI EN 300 386 V1.3.3
	EN	EN 61000-4-2:1995+A1:1998+A2:2001; EN 61000-4-3:2006; EN 61000-4-4:2004; EN 61000-4-5:2006; EN 61000-4-6: 1996 +A1:2001:A2:2007; EN 61000-4-8:2001; EN 61000-4-11:2004; EN 55024:1998+ A1:2001 + A2:2003
Management	IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; SNMP Manager; Telnet; HTTPS; RMON1; FTP; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB	
Notes	Maximum number of users: 2,000; maximum number of users supported by local authentication: 1,000; maximum number of SSIDs that can be configured: 128; maximum number of users supported by local portal authentication: 1,000; number of ACLs: 4,000. Customer must order a power supply, as the device does not come with a PSU. At least one JD362A or JD366A is required.	
Services	3-year, parts only, global next-day advance exchange (UX182E)	
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX183E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UX186E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX189E)	
	3-year, 24x7 SW phone support, software updates (UX192E)	
	1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR725E)	
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR726E)		
1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support		

Technical Specifications

(HR727E)
 4-year, 4-hour onsite, 13x5 coverage for hardware (UX184E)
 4-year, 4-hour onsite, 24x7 coverage for hardware (UX187E)
 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX190E)
 4-year, 24x7 SW phone support, software updates (UX193E)
 5-year, 4-hour onsite, 13x5 coverage for hardware (UX185E)
 5-year, 4-hour onsite, 24x7 coverage for hardware (UX188E)
 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX191E)
 5-year, 24x7 SW phone support, software updates (UX194E)
 3 Yr 6 hr Call-to-Repair Onsite (UX195E)
 4 Yr 6 hr Call-to-Repair Onsite (UX196E)
 5 Yr 6 hr Call-to-Repair Onsite (UX197E)
 1-year, 6 hour Call-To-Repair Onsite for hardware (HR729E)
 1-year, 24x7 software phone support, software updates (HR728E)

Refer to the HP website at: <http://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.

HP WX5004 Access Controller (JD448B)

Ports	4 dual-personality ports; (4 GbE 10/100/1000Base-T and 1000Base-X combination ports) 1 RJ-45 serial console port	
Physical characteristics	Dimensions	16.93(d) x 17.32(w) x 1.72(h) in. (43 x 44 x 4.36 cm) (1U height)
	Weight	16.31 lb. (7.4 kg), Fully loaded two power supplies
Power supplies	2 power supply slots 1 minimum power supply required (ordered separately)	
Memory and processor	Processor	Quad-core @ 800 MHz, 256 MB compact flash, 1 GB DDR2 DIMM
Mounting	EIA-standard 19 in. telco rack or equipment cabinet (hardware included)	
Performance	Switch fabric speed	8 Gbps
	MAC address table size	8000 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	5% to 95%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Nonoperating/Storage relative humidity	5% to 95%, noncondensing
	Maximum heat dissipation	222 BTU/hr (234.21 kJ/hr)
	Voltage	100-240 VAC
	DC Voltage	-48 VDC to -60 VDC
Safety	Maximum power rating	67.7 W
	Frequency	50 / 60 Hz
	UL 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; GOST; C-Tick; NOM; IEC 60950-1 (with CB report)	
Emissions	EN 55022; VCCI; ICES-003; AS/NZS CISPR 22; EN 300 386; FCC Part 15; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC	
Immunity	Generic	ETSI EN 300 386 V1.3.3
	EN	EN 61000-4-2:1995+A1:1998+A2:2001; EN 61000-4-3:2006; EN 61000-4-4:2004; EN 61000-4-5:2006; EN 61000-4-6: 1996 +A1:2001+A2:2007; EN

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61000-4-8:2001; EN 61000-4-11:2004; EN 55024:1998+ A1:2001 + A2:2003

Management	IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; SNMP Manager; Telnet; HTTPS; RMON1; FTP; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB
Notes	Maximum number of users: 4,000; maximum number of users supported by local authentication: 1,000; maximum number of SSIDs that can be configured: 256; maximum number of users supported by local portal authentication: 2,000; number of ACLs: 8,000. Customer must order a power supply, as the device does not come with a PSU. At least one JD362A or JD366A is required.
Services	<p>3-year, parts only, global next-day advance exchange (UX182E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX183E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX186E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX189E)</p> <p>3-year, 24x7 SW phone support, software updates (UX192E)</p> <p>1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (HR725E)</p> <p>1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (HR726E)</p> <p>1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (HR727E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX184E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX187E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX190E)</p> <p>4-year, 24x7 SW phone support, software updates (UX193E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX185E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX188E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX191E)</p> <p>5-year, 24x7 SW phone support, software updates (UX194E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX195E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX196E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX197E)</p> <p>1-year, 6 hour Call-To-Repair Onsite for hardware (HR729E)</p> <p>1-year, 24x7 software phone support, software updates (HR728E)</p>

Refer to the HP website at: <http://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.

Standards and protocols	General protocols	
	RFC 768 UDP	RFC 2462 IPv6 Stateless Address Auto-configuration
	RFC 791 IP	RFC 2463 ICMPv6
	RFC 792 ICMP	RFC 2464 Transmission of IPv6 over Ethernet Networks
	RFC 793 TCP	RFC 2526 Reserved IPv6 Subnet Anycast Addresses
	RFC 826 ARP	RFC 2563 ICMPv6
	RFC 854 TELNET	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
	RFC 855 Telnet Option Specification	RFC 3484 Default Address Selection for IPv6
	RFC 858 Telnet Suppress Go Ahead Option	RFC 3587 IPv6 Global Unicast Address Format
	RFC 894 IP over Ethernet	RFC 4443 ICMPv6
	RFC 950 Internet Standard Subnetting Procedure	RFC 4541 IGMP & MLD Snooping Switch
	RFC 959 File Transfer Protocol (FTP)	
	RFC 1122 Host Requirements	
	RFC 1141 Incremental updating of the Internet checksum	

Technical Specifications

RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 4861 IPv6 Neighbor Discovery
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 1321 The MD5 Message-Digest Algorithm	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 1334 PPP Authentication Protocols (PAP)	
RFC 1350 TFTP Protocol (revision 2)	
RFC 1812 IPv4 Routing	MIBs
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 1229 Interface MIB Extensions
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 1643 Ethernet MIB
RFC 2104 HMAC: Keyed-Hashing for Message Authentication	RFC 1757 Remote Network Monitoring MIB
RFC 2246 The TLS Protocol Version 1.0	RFC 2011 SNMPv2 MIB for IP
RFC 2284 EAP over LAN	RFC 2012 SNMPv2 MIB for TCP
RFC 2644 Directed Broadcast Control	RFC 2013 SNMPv2 MIB for UDP
RFC 2864 The Inverted Stack Table Extension to the Interfaces Group MIB	RFC 2571 SNMP Framework MIB
RFC 2866 RADIUS Accounting	RFC 2572 SNMP-MPD MIB
RFC 2869 RADIUS Extensions	RFC 2613 SMON MIB
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)	RFC 2863 The Interfaces Group MIB
RFC 3619 Ethernet Automatic Protection Switching (EAPS)	RFC 2932IP (Multicast Routing MIB)
RFC 5281 Extensible Authentication Protocol Tunneled Transport Layer Security Authenticated Protocol Version 0 (EAP-TLSv0)	RFC 2933 IGMP MIB
IP multicast	Network management
RFC 1112 IGMP	RFC 1155 Structure of Management Information
RFC 2236 IGMPv2	RFC 1905 SNMPv2 Protocol Operations
RFC 2934 Protocol Independent Multicast MIB for IPv4	RFC 2573 SNMPv3 Applications
	RFC 2574 SNMPv3 User-based Security Model (USM)
	RFC 2575 VACM for SNMP
	SNMPv1/v2c
IPv6	QoS/CoS
RFC 1350 TFTP	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 1881 IPv6 Address Allocation Management	RFC 2475 DiffServ Architecture
RFC 1887 IPv6 Unicast Address Allocation Architecture	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP
RFC 1981 IPv6 Path MTU Discovery	WiFi MultiMedia (WMM), IEEE 802.11e
RFC 2292 Advanced Sockets API for IPv6	
RFC 2373 IPv6 Addressing Architecture	Security
RFC 2375 IPv6 Multicast Address Assignments	IEEE 802.1X Port Based Network Access Control
RFC 2460 IPv6 Specification	RFC 3394 Advanced Encryption Standard (AES) Key Wrap Algorithm
RFC 2461 IPv6 Neighbor Discovery	RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
	Access Control Lists (ACLs)
	Guest VLAN for 802.1x
	MAC Authentication
	Secure Sockets Layer (SSL)
	SSHv1.5 Secure Shell
	SSHv2 Secure Shell
	Web Authentication
	WPA (Wi-Fi Protected Access)/WPA2

Accessories

**HP A-WX5000 Access
Controller Series
accessories****Transceivers**

HP X125 1G SFP LC LH40 1310nm Transceiver

JD061A

HP X120 1G SFP LC LH40 1550nm Transceiver

JD062A

HP X125 1G SFP LC LH70 Transceiver

JD063B

HP X120 1G SFP LC SX Transceiver

JD118B

HP X120 1G SFP LC LX Transceiver

JD119B

Power Supply

HP 5800/5500 150W AC Power Supply

JD362A

HP 5800/5500 150W DC Power Supply

JD366A

License

HP WX5000 32 AP License Upgrade

JD463B

QuickSpecs

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Accessory Product Details

NOTE: Details are not available for all accessories. The following specifications were available at the time of publication.

HP X125 1G SFP LC LH40 1310nm Transceiver (JD061A) A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber.	Ports	1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)
	Connectivity	Connector type Wavelength
	Physical characteristics	Dimensions
	Electrical characteristics	Full configuration weight Power consumption typical Power consumption maximum
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652;
		Maximum distance:
		<ul style="list-style-type: none"> 40km distance
Services	Fiber type Refer to the HP website at http://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.	Single Mode

HP X120 1G SFP LC LH40 1550nm Transceiver (JD062A) A small form-factor pluggable (SFP) Gigabit LH40 transceiver that provides a full-duplex Gigabit solution up to 40 km on a single mode fiber.	Ports	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)
	Connectivity	Connector type Wavelength
	Physical characteristics	Dimensions
	Electrical characteristics	Full configuration weight Power consumption typical Power consumption maximum
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652;
		Maximum distance:
		<ul style="list-style-type: none"> 40km distance
Services	Fiber type Refer to the HP website at http://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.	Single Mode

HP X125 1G SFP LC LH70	Ports	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)
	Connectivity	Connector type LC

QuickSpecs

HP WX5000 Access Controller Series

Accessory Product Details

Transceiver (JD063B) A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km on a single-mode fiber.	Physical characteristics	Wavelength	1550 nm
		Dimensions	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		Full configuration weight	0.04 lb. (0.02 kg)
	Electrical characteristics	Power consumption typical	0.8 W
		Power consumption maximum	1.0 W
	Cabling	Cable type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 70km Fiber type Single Mode	
	Services	Refer to the HP website at http://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.	

HP X120 1G SFP LC SX Transceiver (JD118B) A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550m on a Multimode fiber.	Ports	1 LC 1000BASE-SX port		
	Connectivity	Connector type	LC	
		Wavelength	850 nm	
	Physical characteristics	Dimensions	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)	
		Full configuration weight	0.04 lb. (0.02 kg)	
	Electrical characteristics	Power consumption typical	0.8 W	
		Power consumption maximum	1.0 W	
	Cabling	Maximum distance: • FDDI Grade distance = 220m • OM1 = 275m • OM2 = 500m • OM3 = Not Specified by standard Cable length up to 550m Fiber type Multi Mode		
	Services	Refer to the HP website at http://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.		

HP X120 1G SFP LC LX Transceiver (JD119B) A small form-factor pluggable (SFP) Gigabit LX transceiver that provides a full duplex Gigabit solution up to 550m on MMF or 10Km on	Ports	1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX)		
	Connectivity	Connector type	LC	
		Wavelength	1300 nm	
	Physical characteristics	Dimensions	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)	
		Full configuration weight	0.04 lb. (0.02 kg)	
	Electrical characteristics	Power consumption typical	0.8 W	

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Accessory Product Details

SMF

Power consumption maximum 1.0 W**Cabling**Cable type:
Either single mode or multimode;Maximum distance:

- 550m for Multimode
- 10km for Singlemode

Fiber type Both

ServicesRefer to the HP website at <http://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.

QuickSpecs

HP WX5000 Access Controller Series

Summary of Changes

Date	Version History	Action	Description of Change
24-Jul-2015	From Version 8 to 9	Changed	This QuickSpecs was retired; no further updates will be made.
09-Nov-2011	From Version 7 to 8	Changed	The product name was updated throughout the document.
14-Oct-2011	From Version 6 to 7	Added	Accessory Product Details was added.
30-Aug-2011	From Version 5 to 6	Changed	Updated the Accessories section, removing an unsupported accessory, as well as the Standard and Protocol and Features and Benefits sections.
03-Jun-2011	From Version 4 to 5	Changed	Updated the Accessories section, removing an unsupported accessory.
15-Mar-2011	From Version 3 to 4	Changed	Updated the Standards and protocols section.
08-Mar-2011	From Version 2 to 3	Changed	Revisions were made throughout.
18-Jan-2011	From Version 1 to 2	Changed	Changes were made throughout the QuickSpec, including changing the title and adding a new model.

To learn more, visit: <http://www.hp.com/networking>

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