

### Overview

## Models

HP WX5002 Access Controller  
HP WX5004 Access Controller

JD447B  
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



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management station; controller supports SNMPv3 as well as SSH and SSL for secure CLI and Web management

- **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 the data integrity of wireless traffic
- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote CLI access over IP networks



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- **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



### Technical Specifications

#### HP WX5002 Access Controller (JD447B)

<b>Ports</b>	2 dual-personality ports; (2 GbE 10/100/1000Base-T and 1000Base-X combination ports) 1 RJ-45 serial console port
<b>Physical characteristics</b>	<b>Dimensions</b> 16.93(d) x 17.32(w) x 1.72(h) in. (43 x 44 x 4.36 cm) (1U height) <b>Weight</b> 16.31 lb. (7.4 kg), Fully loaded two power supplies
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
<b>Memory and processor</b>	<b>Processor</b> Quad-core @ 800 MHz, 256 MB compact flash, 1 GB DDR2 DIMM
<b>Mounting</b>	EIA-standard 19 in. telco rack or equipment cabinet (hardware included)
<b>Performance</b>	<b>Switch fabric speed</b> 4 Gbps <b>MAC address table size</b> 4000 entries
<b>Environment</b>	<b>Operating temperature</b> 32°F to 113°F (0°C to 45°C) <b>Operating relative humidity</b> 5% to 95%, noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C) <b>Nonoperating/Storage relative humidity</b> 5% to 95%, noncondensing
<b>Electrical characteristics</b>	<b>Maximum heat dissipation</b> 222 BTU/hr (234.21 kJ/hr) <b>Voltage</b> 100-240 VAC <b>DC Voltage</b> -48 VDC to -60 VDC <b>Maximum power rating</b> 67.7 W <b>Frequency</b> 50 / 60 Hz
<b>Safety</b>	UL 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; GOST; C-Tick; NOM; IEC 60950-1 (with CB report)
<b>Emissions</b>	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
<b>Immunity</b>	<b>Generic</b> ETSI EN 300 386 V1.3.3 <b>EN</b> 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
<b>Management</b>	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
<b>Notes</b>	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.
<b>Services</b>	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)



### Technical Specifications

- 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 (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: [www.hp.com/networking/services](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.

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#### HP WX5004 Access Controller (JD448B)

<b>Ports</b>	4 dual-personality ports; (4 GbE 10/100/1000Base-T and 1000Base-X combination ports) 1 RJ-45 serial console port
<b>Physical characteristics</b>	<b>Dimensions</b> 16.93(d) x 17.32(w) x 1.72(h) in. (43 x 44 x 4.36 cm) (1U height) <b>Weight</b> 16.31 lb. (7.4 kg), Fully loaded two power supplies
<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
<b>Memory and processor</b>	<b>Processor</b> Quad-core @ 800 MHz, 256 MB compact flash, 1 GB DDR2 DIMM
<b>Mounting</b>	EIA-standard 19 in. telco rack or equipment cabinet (hardware included)
<b>Performance</b>	<b>Switch fabric speed</b> 8 Gbps <b>MAC address table size</b> 8000 entries
<b>Environment</b>	<b>Operating temperature</b> 32°F to 113°F (0°C to 45°C) <b>Operating relative humidity</b> 5% to 95%, noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C) <b>Nonoperating/Storage relative humidity</b> 5% to 95%, noncondensing
<b>Electrical characteristics</b>	<b>Maximum heat dissipation</b> 222 BTU/hr (234.21 kJ/hr) <b>Voltage</b> 100-240 VAC <b>DC Voltage</b> -48 VDC to -60 VDC <b>Maximum power rating</b> 67.7 W <b>Frequency</b> 50 / 60 Hz



### Technical Specifications

<b>Safety</b>	UL 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; Anatel; GOST; C-Tick; NOM; IEC 60950-1 (with CB report)	
<b>Emissions</b>	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	
<b>Immunity</b>	<b>Generic</b>	ETSI EN 300 386 V1.3.3
	<b>EN</b>	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
<b>Management</b>	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	
<b>Notes</b>	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.	
<b>Services</b>	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 (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: <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.	
<b>Standards and protocols</b>	<b>General protocols</b>	RFC 2462 IPv6 Stateless Address Auto-configuration RFC 768 UDP RFC 791 IP RFC 2463 ICMPv6 RFC 792 ICMP RFC 2464 Transmission of IPv6 over Ethernet



### Technical Specifications

- RFC 793 TCP
- RFC 826 ARP
- RFC 854 TELNET
- RFC 855 Telnet Option Specification
- RFC 858 Telnet Suppress Go Ahead Option
- RFC 894 IP over Ethernet
- RFC 950 Internet Standard Subnetting Procedure
- RFC 959 File Transfer Protocol (FTP)
- RFC 1122 Host Requirements
- RFC 1141 Incremental updating of the Internet checksum
- RFC 1144 Compressing TCP/IP headers for low-speed serial links
- RFC 1256 ICMP Router Discovery Protocol (IRDP)
- RFC 1321 The MD5 Message-Digest Algorithm
- RFC 1334 PPP Authentication Protocols (PAP)
- RFC 1350 TFTP Protocol (revision 2)
- RFC 1812 IPv4 Routing
- RFC 1944 Benchmarking Methodology for Network Interconnect Devices
- RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
- RFC 2104 HMAC: Keyed-Hashing for Message Authentication
- RFC 2246 The TLS Protocol Version 1.0
- RFC 2284 EAP over LAN
- RFC 2644 Directed Broadcast Control
- RFC 2864 The Inverted Stack Table Extension to the Interfaces Group MIB
- RFC 2866 RADIUS Accounting
- RFC 2869 RADIUS Extensions
- RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
- RFC 3619 Ethernet Automatic Protection Switching (EAPS)
- RFC 5281 Extensible Authentication Protocol Tunneled Transport Layer Security Authenticated Protocol Version 0 (EAP-TTLSv0)
- IP multicast**
  - RFC 1112 IGMP
  - RFC 2236 IGMPv2
  - RFC 2934 Protocol Independent Multicast MIB for IPv4
- IPv6**
  - RFC 1350 TFTP
  - RFC 1881 IPv6 Address Allocation Management
  - RFC 1887 IPv6 Unicast Address Allocation Architecture
  - RFC 1981 IPv6 Path MTU Discovery
  - RFC 2292 Advanced Sockets API for IPv6 Networks
  - RFC 2526 Reserved IPv6 Subnet Anycast Addresses
  - RFC 2563 ICMPv6
  - RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
  - RFC 3484 Default Address Selection for IPv6
  - RFC 3587 IPv6 Global Unicast Address Format
  - RFC 4443 ICMPv6
  - RFC 4541 IGMP & MLD Snooping Switch
  - RFC 4861 IPv6 Neighbor Discovery
  - RFC 4862 IPv6 Stateless Address Auto-configuration
  - RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
- MIBs**
  - RFC 1229 Interface MIB Extensions
  - RFC 1643 Ethernet MIB
  - RFC 1757 Remote Network Monitoring MIB
  - RFC 2011 SNMPv2 MIB for IP
  - RFC 2012 SNMPv2 MIB for TCP
  - RFC 2013 SNMPv2 MIB for UDP
  - RFC 2571 SNMP Framework MIB
  - RFC 2572 SNMP-MPD MIB
  - RFC 2613 SMON MIB
  - RFC 2863 The Interfaces Group MIB
  - RFC 2932IP (Multicast Routing MIB)
  - RFC 2933 IGMP MIB
- Network management**
  - RFC 1155 Structure of Management Information
  - RFC 1905 SNMPv2 Protocol Operations
  - RFC 2573 SNMPv3 Applications
  - RFC 2574 SNMPv3 User-based Security Model (USM)
  - RFC 2575 VACM for SNMP
  - SNMPv1/v2c
- QoS/CoS**
  - RFC 2474 DS Field in the IPv4 and IPv6 Headers
  - RFC 2475 DiffServ Architecture
  - RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP
  - WiFi MultiMedia (WMM), IEEE 802.11e
- Security**
  - IEEE 802.1X Port Based Network Access Control
  - RFC 3394 Advanced Encryption Standard (AES) Key Wrap Algorithm
  - RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)



### *Technical Specifications*

RFC 2373 IPv6 Addressing Architecture  
RFC 2375 IPv6 Multicast Address Assignments  
RFC 2460 IPv6 Specification  
RFC 2461 IPv6 Neighbor Discovery

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	<b>Transceivers</b>	
	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
	<b>Power Supply</b>	
	HP 5800/5500 150W AC Power Supply	JD362A
	HP 5800/5500 150W DC Power Supply	JD366A
	<b>License</b>	
HP WX5000 32 AP License Upgrade	JD463B	



### Accessory Product Details

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

<b>HP X125 1G SFP LC LH40 Ports 1310nm Transceiver (JD061A)</b>	<b>Connectivity</b>	1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)
A small form-factor pluggable SFP Gigabit LH40 transceiver that provides a full duplex Gigabit solution up to 40km on a single-mode fiber.	<b>Physical characteristics</b>	Connector type LC Wavelength 1310 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)
	<b>Electrical characteristics</b>	Power consumption typical 0.8 W Power consumption maximum 1.0 W
	<b>Cabling</b>	Cable type: Single-mode fiber optic, complying with ITU-T G.652;  Maximum distance: <ul style="list-style-type: none"><li>• 40km distance</li></ul> Fiber type Single Mode
	<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.

<b>HP X120 1G SFP LC LH40 Ports 1550nm Transceiver (JD062A)</b>	<b>Connectivity</b>	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)
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.	<b>Physical characteristics</b>	Connector type LC 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)
	<b>Electrical characteristics</b>	Power consumption typical 0.8 W Power consumption maximum 1.0 W
	<b>Cabling</b>	Cable type: Single-mode fiber optic, complying with ITU-T G.652;  Maximum distance: <ul style="list-style-type: none"><li>• 40km distance</li></ul> Fiber type Single Mode
	<b>Services</b>	Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.



### Accessory Product Details

<b>HP X125 1G SFP LC LH70 Transceiver (JD063B)</b>	<b>Ports</b>	1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics)	
A small form-factor pluggable (SFP) Gigabit LH70 transceiver that provides a full-duplex Gigabit solution up to 70km on a single-mode fiber.	<b>Connectivity</b>	<b>Connector type</b>	LC
	<b>Physical characteristics</b>	<b>Wavelength</b>	1550 nm
		<b>Dimensions</b>	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		<b>Full configuration weight</b>	0.04 lb. (0.02 kg)
	<b>Electrical characteristics</b>	<b>Power consumption typical</b>	0.8 W
		<b>Power consumption maximum</b>	1.0 W
	<b>Cabling</b>	Cable type: Single-mode fiber optic, complying with ITU-T G.652;	
		Maximum distance: • 70km	
	<b>Services</b>	<b>Fiber type</b>	Single Mode
		Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.	

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

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### Accessory Product Details

<b>HP X120 1G SFP LC LX Transceiver (JD119B)</b>	<b>Ports</b>	1 SFP 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX)	
A small form-factor pluggable (SFP) Gigabit LX transceiver that provides a full duplex Gigabit solution up to 550m on MMF or 10Km on SMF	<b>Connectivity</b>	<b>Connector type</b> LC	
	<b>Physical characteristics</b>	<b>Wavelength</b>	1300 nm
		<b>Dimensions</b>	2.17(d) x 0.6(w) x 0.46(h) in. (5.51 x 1.52 x 1.17 cm)
		<b>Full configuration weight</b>	0.04 lb. (0.02 kg)
	<b>Electrical characteristics</b>	<b>Power consumption typical</b>	0.8 W
		<b>Power consumption maximum</b>	1.0 W
	<b>Cabling</b>	<b>Cable type:</b>	Either single mode or multimode;
		<b>Maximum distance:</b>	<ul style="list-style-type: none"><li>• 550m for Multimode</li><li>• 10km for Singlemode</li></ul>
	<b>Services</b>	<b>Fiber type</b>	Both
			Refer to the HP website at <a href="http://www.hp.com/networking/services">www.hp.com/networking/services</a> 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.

To learn more, visit: [www.hp.com/networking](http://www.hp.com/networking)

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