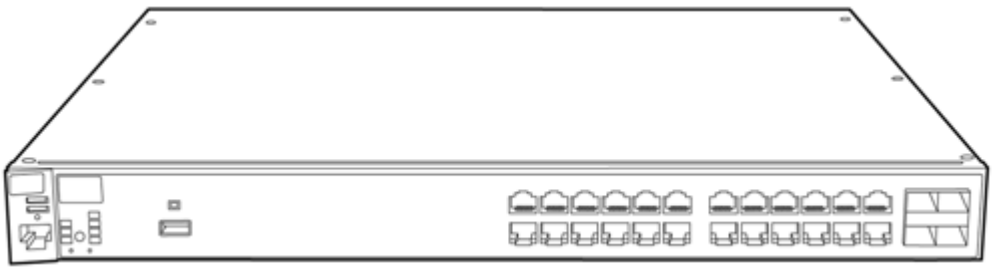
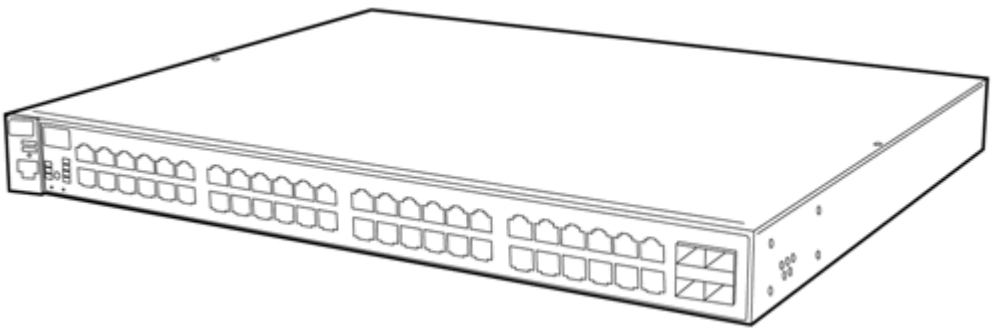
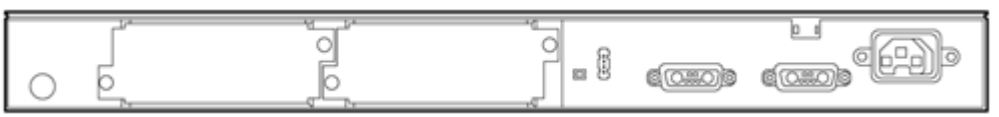
Overview



HP 2910-24G al Switch



HP 2910-48G al Switch



HP 2910-48G-PoE+ al Switch

Models

HP 2910-24G al Switch	J9145A
HP 2910-48G al Switch	J9147A
HP 2910-24G-PoE+ al Switch	J9146A
HP 2910-48G-PoE+ al Switch	J9148A

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

Overview

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.

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**: allows for increased performance by selecting the number of queues and associated memory buffering that best meet the requirements of the 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 620 Redundant/External Power

Overview

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** (GVRP): 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**: is similar to IEEE 802.1X and provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant
  - **MAC-based authentication**: authenticates the client 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 a user from "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 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

Overview

- **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**: helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
- **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 attacks 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
- **Electronic and telephone support**: limited electronic and telephone support is available from HP; to reach our support centers, refer to www.hp.com/networking/contact-support; for details on the duration of support provided with your product purchase, refer to www.hp.com/networking/warrantysummary
- **Software releases**: to find software for your product, refer to www.hp.com/networking/support; for details on the software releases available with your product purchase, refer to www.hp.com/networking/warrantysummary

†HP warranty includes repair or replacement of hardware for as long as you own the product, with next business day advance replacemen most countries). The disk drive included with HP AllianceOne Advanced Services and Services zl Modules, HP Threat Management Services zl Module, HP AllianceOne Extended zl Module with Riverbed Steelhead, HP MSM765zl Mobility Controller and HP Survivable Branch Communication zl Module powered by Microsoft Lync has a five-year hardware warranty. For details, refer to the Software license and hardware warranty statements at www.hp.com/networking/warranty.

Configuration

Build To Order: BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

HP 2910-24G al Switch — J9145A
- 20 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2, 3

PDU Cable NA/MEX/TW/JP — J9145A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9145A#B2C
- C15 PDU Jumper Cord (ROW)

HP 2910-48G al Switch — J9147A
- 44 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2, 3

PDU Cable NA/MEX/TW/JP — J9147A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9147A#B2C
- C15 PDU Jumper Cord (ROW)

HP 2910-24G-PoE+ al Switch — J9146A
- 20 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2, 3

PDU Cable NA/MEX/TW/JP — J9146A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9146A#B2C
- C15 PDU Jumper Cord (ROW)

HP 2910-48G-PoE+ al Switch — J9148A
- 44 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2, 3

Configuration

PDU Cable NA/MEX/TW/JP J9148A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW J9148A#B2C

- C15 PDU Jumper Cord (ROW)

Configuration Rules:

Note 1 The following Transceivers install into this switch:

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 X121 1G SFP LC LH Transceiver	J4860C
HP X121 1G SFP LC LX Transceiver	J4859C
HP X121 1G SFP LC SX Transceiver	J4858C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
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 X242 SFP+ SFP+ 1m Direct Attach Cable	J9281B
HP X242 SFP+ SFP+ 3m Direct Attach Cable	J9283B
HP X242 SFP+ SFP+ 7m Direct Attach Cable	J9285B
HP X244 XFP SFP+ 1m Direct Attach Cable	J9300A
HP X244 XFP SFP+ 3m Direct Attach Cable	J9301A
HP X244 XFP SFP+ 5m Direct Attach Cable	J9302A
HP X242 SFP+ 10m DAC Cable	J9286B
HP X242 SFP+ 15m DAC Cable	J9287B

Note 2 Localization required. (See Localization Menu for list.)

Note 3 Localization required on orders without #B2B or #B2C options.

Remarks:

Drop down under power supply should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)

Factory Racked Models

HP 2910-24G al Switch J9145A

- 20 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2

Configuration

HP 2910-24G Fact Integrated al Switch	J9145AZ See Configuration Note:1, 2
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9145A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9145A#B2C
HP 2910-48G al Switch • 44 autosensing 10/100/1000 port • 4 dual-personality ports • min=0 \ max=4 SFP Transceivers • 2 - Module Slots • 1U - Height	J9147A See Configuration Note:1, 2
HP 2910-48G Factory Integrated al Switch	J9147AZ See Configuration Note:1, 2
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9147A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9147A#B2C
HP 2910-24G-PoE+ al Switch • 20 autosensing 10/100/1000 port • 4 dual-personality ports • min=0 \ max=4 SFP Transceivers • 2 - Module Slots • 1U - Height	J9146A See Configuration Note:1, 2
HP 2910-24G-PoE+ Fact Integ al Switch	J9146AZ See Configuration Note:1, 2
PDU Cable NA/MEX/TW/JP • C15 PDU Jumper Cord (NA/MEX/TW/JP)	J9146A#B2B
PDU Cable ROW • C15 PDU Jumper Cord (ROW)	J9146A#B2C
HP 2910-48G-PoE+ al Switch	J9148A

Configuration

- 44 autosensing 10/100/1000 port
- 4 dual-personality ports
- min=0 \ max=4 SFP Transceivers
- 2 - Module Slots
- 1U - Height

See Configuration Note:1, 2

HP 2910-48G-PoE+ Fact Integ al Switch — J9148AZ

See Configuration Note:1, 2

PDU Cable NA/MEX/TW/JP — J9148A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU Cable ROW — J9148A#B2C

- C15 PDU Jumper Cord (ROW)

Configuration Rules:

Note 1 The following Transceivers install into this switch:

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 X121 1G SFP LC LH Transceiver	J4860C
HP X121 1G SFP LC LX Transceiver	J4859C
HP X121 1G SFP LC SX Transceiver	J4858C
HP X122 1G SFP LC BX-D Transceiver	J9142B
HP X122 1G SFP LC BX-U Transceiver	J9143B
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 X242 SFP+ SFP+ 1m Direct Attach Cable	J9281B
HP X242 SFP+ SFP+ 3m Direct Attach Cable	J9283B
HP X242 SFP+ SFP+ 7m Direct Attach Cable	J9285B
HP X244 XFP SFP+ 1m Direct Attach Cable	J9300A
HP X244 XFP SFP+ 3m Direct Attach Cable	J9301A
HP X244 XFP SFP+ 5m Direct Attach Cable	J9302A
HP X242 SFP+ 10m DAC Cable	J9286B
HP X242 SFP+ 15m DAC Cable	J9287B

Note 2 If this switch is factory installed in HP Universal Racks, Then the J9583A#0D1 or J9583AZ is required.
AMS then J9583AZ is required.
EMEA then J9583A#0D1 is required.
APD, Japan and China then J9583A#0D1 is required.

CLIC Only - Allow the J9583AZ in all regions.

Note 3 Localization required on orders without #B2B or #B2C options.

Configuration

Remarks:

Drop down under power supply should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)

Internal Power Supplies

Power supplies included in base models.

Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

Modules

System (std 0 // max=2) User Selection (min 0 / max=2) per Chassis

HP 2-port 10GbE CX4 al Module	J9149A
HP 2p 10GbE CX4 Fact Integrated al Mod	J9149AZ
HP 2-port 10GbE SFP+ al Module	J9008A
• min=0 \ max=2 SFP+ Transceivers	See Configuration Note:2
HP 2-port 10GbE SFP+ Fact Integ al Mod	J9008AZ
• min=0 \ max=2 SFP+ Transceivers	See Configuration Note:2
HP 10GbE al Switch Interconnect Kit	J9165A
HP 10GbE Fact Intg al Switch Intrcon Kit	J9165AZ

Configuration Rules:

Note 2 The following Transceivers install into this Module:

HP X132 10G SFP+ LC ER Transceiver	J9153A
HP X132 10G SFP+ LC LR Transceiver	J9151A
HP X132 10G SFP+ LC LRM Transceiver	J9152A
HP X132 10G SFP+ LC SR Transceiver	J9150A
HP X242 SFP+ SFP+ 1m Direct Attach Cable	J9281B
HP X242 SFP+ SFP+ 3m Direct Attach Cable	J9283B
HP X242 SFP+ SFP+ 7m Direct Attach Cable	J9285B
HP X244 XFP SFP+ 1m Direct Attach Cable	J9300A
HP X244 XFP SFP+ 3m Direct Attach Cable	J9301A
HP X244 XFP SFP+ 5m Direct Attach Cable	J9302A
HP X242 SFP+ 10m DAC Cable	J9286B
HP X242 SFP+ 15m DAC Cable	J9287B

Transceivers

SFP 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 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
HP X132 10G SFP+ LC SR Transceiver	J9150A
HP X132 10G SFP+ LC LR Transceiver	J9151A
HP X132 10G SFP+ LC LRM Transceiver	J9152A

SFP+ Transceivers

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 X132 10G SFP+ LC ER Transceiver	J9153A
HP X242 10G SFP+ SFP+ 1m DAC Cable	J9281B
HP X242 10G SFP+ SFP+ 3m DAC Cable	J9283B
HP X242 10G SFP+ SFP+ 7m DAC Cable	J9285B
HP X244 XFP SFP+ 1m Direct Attach Cable	J9300A
HP X244 XFP SFP+ 3m Direct Attach Cable	J9301A
HP X244 XFP SFP+ 5m Direct Attach Cable	J9302A
HP X242 SFP+ 10m DAC Cable	J9286B
HP X242 SFP+ 15m DAC Cable	J9287B

Cables

Multi-Mode Cables

HP .5m Multi-mode OM3 LC/LC FC Cable	AJ833A
HP 1m Multi-mode OM3 LC/LC FC Cable	AJ834A
HP 2 m Multimode OM3 LC/LC FC Cable	AJ835A
HP 5 m Multimode OM3 LC/LC FC Cable	AJ836A
HP 15 m Multimode OM3 LC/LC FC Cable	AJ837A
HP 30 m Multimode OM3 LC/LC FC Cable	AJ838A
HP 50 m Multimode OM3 LC/LC FC Cable	AJ839A
HP Premier Flex LC/LC OM4 2f 1m Cbl	QK732A
HP Premier Flex LC/LC OM4 2f 2m Cbl	QK733A
HP Premier Flex LC/LC OM4 2f 5m Cbl	QK734A

Configuration

HP Premier Flex LC/LC OM4 2f 15m Cbl	QK735A
HP Premier Flex LC/LC OM4 2f 30m Cbl	QK736A
HP Premier Flex LC/LC OM4 2f 50m Cbl	QK737A

Switch Enclosure Options

Rack Mount Kit

HP 10GbE al Switch Interconnect Kit — J9165A
- Used to connect two switches together

Rack Mount Kit

HP X410 1U Univ 4-post Rack Mnt Kit — J9583A
See Configuration Note:1

HP X410 1U Integ Univ 4-post Rck Mnt Kit — J9583AZ
See Configuration Note:1

Configuration Rules:

Note 1 If this Mounting Kit is order with #0D1 or Z then it integrates to the HP Universal Rack. (not the switch)

Software

HP IDM v3 Software w/500-user License	J9438A
HP IDM v3 additional 1000-user License	J9440A
HP IDM v3 Software w/Unltd-user License	J9439A

External Power supplies

HP 620 Redundant/External Power Supply — J8696A
- Height = 1U

See Configuration Note:1, 2

HP 630 Red and/or External Power Supply — J9443A
- Height = 1U

See Configuration Note:1, 2

Configuration Rules:

Note 1 See HPN Rack Menu for integration details.

Configuration

Note 2 Localization required. (See Localization Menu for list.)

Technical Specifications

HP 2910-24G al Switch (J9145A)

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	
	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	
	Supports a maximum of 4 10GbE ports, with optional module	
Physical characteristics	**Dimensions**	17.4(w) x 14.4(d) x 1.73(h) in (44.2 x 36.58 x 4.4 cm) (1U height)
	Weight	10.92 lb (4.95 kg)
Memory and processor	**Processor**	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	
Performance	**1000 Mb Latency**	< 2.9 µs (FIFO 64-byte packets)
	10 Gbps Latency	< 1.3 µs (FIFO 64-byte packets)
	Throughput	up to 95 million pps (64-byte packets)
	Switching capacity	128 Gbps
	Routing table size	2000 entries (IPv4)
	MAC address table size	16000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 53.5 dB, Pressure: 39.4 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
	Maximum heat dissipation	279 BTU/hr (295 kJ/hr)
	Voltage	100-127/200-240 VAC
	Current	1.7/0.9 A
	Idle power	49 W
	Maximum power rating	82 W
	Frequency	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.

Technical Specifications

Safety	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	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	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
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m
	Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
	Harmonics	IEC 61000-3-2
	Flicker	IEC 61000-3-3
Management	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.	
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 software phone support (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) 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.

HP 2910-48G al Switch (J9147A)

Ports	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)	
	1 RJ-45 serial console port	
	Supports a maximum of 4 10GbE ports, with optional module	
Physical characteristics	**Dimensions**	17.42(w) x 14.4(d) x 1.73(h) in (44.25 x 36.58 x 4.4 cm) (1U height)
	Weight	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
Mounting	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)
	10 Gbps Latency	< 1.3 µs (FIFO 64-byte packets)
	Throughput	up to 131 million pps
	Switching capacity	176 Gbps
	Routing table size	2000 entries (IPv4)
	MAC address table size	16000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), non-condensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 95% @ 149°F (65°C), non-condensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	Power: 53.5 dB, Pressure: 39.4 dB; DIN 45635T.19 per ISO 7779
Electrical characteristics	Achieved Miercom Certified Green Award	
	* 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.	
	Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
	Maximum heat dissipation	356 BTU/hr (376 kJ/hr)
	Voltage	100-127/200-240 VAC
	Current	2.1/1.1 A
	Idle power	64 W
	Maximum power rating	105 W

Technical Specifications

	Frequency	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.
Safety	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	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	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
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m
	Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
	Harmonics	IEC 61000-3-2
	Flicker	IEC 61000-3-3
Management	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.	
Services	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 software phone support (U6319E) 3-year, 24x7 SW phone support, software updates (UE264E) 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.

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

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	
	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	
	Supports a maximum of 4 10GbE ports, with optional module	
Physical characteristics	**Dimensions**	17.4(w) x 14.4(d) x 1.73(h) in (44.2 x 36.58 x 4.39 cm) (1U height)
	Weight	12.34 lb (5.6 kg)
Memory and processor	**Processor**	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	
Performance	**1000 Mb Latency**	< 2.9 µs (FIFO)
	10 Gbps Latency	< 1.3 µs (FIFO)
	Throughput	up to 95 million pps
	Switching capacity	128 Gbps
	Routing table size	2000 entries (IPv4)
	MAC address table size	16000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), non-condensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 95% @ 149°F (65°C), non-condensing
	Altitude	up to 10,000 ft (3 km)
	Acoustic	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
	Maximum heat dissipation	447 BTU/hr (472 kJ/hr), max. using PoE+

Technical Specifications

	Voltage	100-127/200-240 VAC
	Current	6.1/3.1 A
	Idle power	65 W
	Maximum power rating	490 W
	PoE power	382 W
	Frequency	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 a External Power Supply (EPS).
Safety	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	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	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
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m
	Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
	Harmonics	IEC 61000-3-2
	Flicker	IEC 61000-3-3
Management	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.	
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 software phone support (U6304E) 3-year, 24x7 SW phone support, software updates (UE262E) 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)	

Technical Specifications

5 Yr 6 hr Call-to-Repair Onsite (UW358E)
-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.

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

Ports	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)	
	1 RJ-45 serial console port	
	Supports a maximum of 4 10GbE ports, with optional module	
Physical characteristics	**Dimensions**	17.42(w) x 14.4(d) x 1.73(h) in (44.25 x 36.58 x 4.39 cm) (1U height)
	Weight	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
Mounting	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)
	10 Gbps Latency	< 1.3 µs (FIFO)
	Throughput	up to 131 million pps
	Switching capacity	176 Gbps
	Routing table size	2000 entries (IPv4)
	MAC address table size	16000 entries
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95% @ 104°F (40°C), non-condensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/ Storage relative humidity	15% to 95% @ 149°F (65°C), non-condensing

Technical Specifications

	Altitude	up to 10,000 ft (3 km)
	Acoustic	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
	Maximum heat dissipation	667 BTU/hr (704 kJ/hr), max. using PoE+
	Voltage	100-127/200-240 VAC
	Current	6.4/3.2 A
	Idle power	89 W
	Maximum power rating	556 W
	PoE power	382 W
	Frequency	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 a External Power Supply (EPS).
Safety	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	
Immunity	**EN**	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	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
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m
	Voltage dips and interruptions	IEC 61000-4-11; > 95% reductions, 0.5 period; 30% reduction, 25 periods
	Harmonics	IEC 61000-3-2
	Flicker	IEC 61000-3-3
Management	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.	
Services	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 software phone support (U6319E) 3-year, 24x7 SW phone support, software updates (UE264E) 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.

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)

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

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

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)

Accessories

HP 2910 al Switch Series accessories	**Modules**	
	HP 2-port 10GbE CX4 al Module	J9149A
	HP 2-port 10GbE SFP+ al Module	J9008A
	HP 10-GbE 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 X132 10G SFP+ LC ER Transceiver	J9153A
	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 X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable	J9286B
	HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable	J9287B
	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
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
	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	

Accessories

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

Accessory Product Details

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

HP 2-port 10GbE CX4 al Module (J9149A)	**Ports**	2 CX4 10-GbE ports (IEEE 802.3ak Type 10GBASE-CX4); Duplex: full only	
	Physical characteristics	**Dimensions**	4.11(d) x 4.18(w) x 1.4(h) in. (10.44 x 10.62 x 3.56 cm)
		Weight	0.35 lb. (0.16 kg)
	Environment	**Operating temperature**	32°F to 122°F (0°C to 50°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Cabling	Maximum distance: • 15 m using CX4 cable • 300 m using optical media converters and multimode fiber cable	
	Notes	Use CX4 10-GbE cable (0.5 m-15 m) or HP ProCurve 10-GbE CX4 Media Converter (J8439A). No CX4 cables are included with this module.	
	Services	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.	
HP 2-port 10GbE SFP+ al Module (J9008A)	**Ports**	2 open 10-GbE SFP+ transceiver slots	
	Physical characteristics	**Dimensions**	4.0(d) x 4.18(w) x 1.4(h) in. (10.16 x 10.62 x 3.56 cm)
		Weight	0.35 lb. (0.16 kg)
	Environment	**Operating temperature**	32°F to 122°F (0°C to 50°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Services	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.	

Accessory Product Details

HP 10GbE al Switch Interconnect Kit (J9165A)	**Physical characteristics**	**Dimensions**	4.11(d) x 4.18(w) x 1.4(h) in. (10.44 x 10.62 x 3.56 cm)
		Weight	0.31 lb. (0.14 kg)
	Environment	**Operating temperature**	32°F to 122°F (0°C to 50°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing
	Notes	ProCurve Switch bl 10-GbE Interconnect Kit includes two 1-port 10-GbE CX4 compatible Interconnect modules for short-distance connectivity using the 0.5 m CX4 cable provided.	
	Services	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.	

HP X111 100M SFP LC FX Transceiver (J9054C)	**Ports**	1 LC 100BASE-FX port (IEEE 802.3u Type 100BASE-FX); Duplex: half or full	
	Physical characteristics	**Dimensions**	2.7(d) x 0.54(w) x 0.48(h) in. (6.86 x 1.38 x 1.22 cm)
		Weight	0.06 lb. (0.03 kg)
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 85%
		Altitude	up to 10,000 ft. (3 km)
	Cabling	Cable type: 62.5/125 ìm or 50/125 ìm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Maximum distance: • 2 km (full duplex) or 412 m (half duplex)	
	Notes	Transmitter wavelength: 1310nm Power consumption is 1.1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the J9054B 100-FX SFP-LC Transceiver" on the "ProCurve Mini-GBICs and SFPs" Manuals Web page.	
	Services	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.	

Accessory Product Details

HP X112 100M SFP LC BX-D Transceiver (J9099B) A small form-factor pluggable (SFP) 100-Megabit BX (bi-directional) "downstream" transceiver that provides 100 Mbps full-duplex connectivity up to 10 km on one strand of singlemode fiber. The J9099B connects to the J9100B "upstream" transceiver, or to any IEEE-standard 100BASE-BX10-U ("upstream") device.	**Ports**	1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-D); Duplex: full only	
	Physical characteristics	**Dimensions**	2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)
		Weight	0.04 lb. (0.03 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, noncondensing
		Nonoperating/Storage temperature	-40ºF to 185ºF (-40ºC to 85ºC)
	Cabling	Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)	
	Notes	Transmit wavelength: 1550 nm. Receive wavelength: 1310 nm. Power consumption is 1.1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HP BX Transceivers" on the "HP Mini-GBICs and SFPs" Manuals Web page. The J9099B connects to the J9100B "upstream" transceiver, or to any IEEE-standard 100BASE-BX10-U ("upstream") device. (A 100-BX-D transceiver can only connect to a 100-BX-U product. You cannot connect two 100-BX-D transceivers together.)	
	Services	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.	

HP X112 100M SFP LC BX-U Transceiver (J9100B) A small form-factor pluggable (SFP) 100-Megabit BX (bi-directional) "upstream" transceiver that provides 100 Mbps full-duplex connectivity up to 10 km on one strand of singlemode fiber. The J9100B connects to the J9099B "downstream" transceiver, or to any IEEE-standard 100BASE-BX10-D ("downstream") device.	**Ports**	1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-U); Duplex: full only	
	Physical characteristics	**Dimensions**	2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)
		Weight	0.07 lb. (.03 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, noncondensing
		Nonoperating/Storage temperature	-40ºF to 185ºF (-40ºC to 85ºC)
	Cabling	Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)	
	Notes	For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HP BX Transceivers" on the	

		"HP Mini-GBICs and SFPs" Manuals Web page. The J9100B connects to the J9099B "downstream" transceiver, or to any IEEE-standard 100BASE-BX10- D ("downstream") device. (A 100-BX-U transceiver can only connect to a 100-BX-D product. You cannot connect two 100-BX-U transceivers together.) Transmit wavelength: 1310 nm. Receive wavelength: 1550 nm. Power consumption is 1.1 watts maximum.
	Services	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.

HP X132 10G SFP+ LC SR Transceiver (J9150A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit SR standard, providing 10-Gigabit connectivity up to 300 m on multimode fiber.	**Ports**		1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	850 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (0.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.6 W
		Power consumption maximum	0.8 W
	Cabling		Cable type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Maximum distance: • 2-26m with 62.5 µm multimode cable @ 160 MHz*km • 2-33m with 62.5 µm multimode cable @ 200 MHz*km • 2-66m with 50 µm multimode cable @ 400 MHz*km • 2-82m with 50 µm multimode cable @ 500 MHz*km • 2-300m with 50 µm multimode cable @ 2000 MHz*km
		Cable length	2-300m
		Fiber type	Multi Mode
	Notes		For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	Services		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.

Accessory Product Details

HP X132 10G SFP+ LC LR Transceiver (J9151A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on single-mode fiber.	**Ports**		1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	1310 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.9 W
		Power consumption maximum	1 W
	Cabling		Cable type: Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 2m-10km with 9/125 µm single-mode cable
		Cable length	2m to 10km
		Fiber type	Single Mode
	Notes		Conditioning patch cord cables are not supported. For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	Services		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.

Accessory Product Details

HP X132 10G SFP+ LC LRM Transceiver (J9152A) A 10-Gigabit transceiver in SFP+ form-factor that supports the 10-Gigabit LRM standard, for 10-Gigabit connectivity up to 220 m on legacy multimode fiber.	**Ports**		1 LC 10-GbE port (IEEE 802.3aq Type 10Gbase-LRM); Duplex: full only
	Connectivity	**Connector type**	LC
		Wavelength	1310 nm
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		Weight	0.04 lb. (.02 kg)
		Transceiver form factor	SFP+
	Environment	**Operating temperature**	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	0% to 85%, noncondensing
		Nonoperating/Storage temperature	-40°F to 185°F (-40°C to 85°C)
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	**Power consumption typical**	0.7 W
		Power consumption maximum	1 W
	Cabling		Cable type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning patch cord may be needed in some multimode fiber installations); Maximum distance: • 0.5-220m with 62.5 µm multimode cable @ 160/500 MHz*km • 0.5-220m with 62.5 µm multimode cable @ 200/500 MHz*km • 0.5-100m with 50 µm multimode cable @ 400/400 MHz*km • 0.5-220m with 50 µm multimode cable @ 500/500 MHz*km • 0.5-220m with 50 µm multimode cable @ 1500/500 MHz*km
		Cable length	0.5m to 220m
		Fiber type	Multi Mode
	Notes		For OM3 cable (50 µm multimode @ 1500/500 MHz*km), a mode-conditioning patch cord is not required. Other multimode cables may require mode-conditioning patch cords to achieve the maximum distances listed above. For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.
	Services		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.

Accessory Product Details

HP X121 1G SFP LC LH Transceiver (J4860C)

A small form-factor pluggable (SFP) Gigabit LH transceiver that provides a full-duplex Gigabit solution up to 70 km on single-mode fiber.

Ports
1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics); Duplex: full only

Physical characteristics
Dimensions: 2.17(d) x 0.60(w) x 0.46(h) in. (5.5 x 1.53 x 1.18 cm)
Weight: 0.04 lb. (0.02 kg)

Environment
Operating temperature: -40°F to 185°F (-40°C to 85°C)
Operating relative humidity: 0% to 95% @ 77°F (25°C), noncondensing
Nonoperating/Storage temperature: -40°F to 185°F (-40°C to 85°C)
Altitude: up to 10,000 ft. (3 km)

Cabling
Cable type:

- Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1;

Maximum distance:

- 10-70,000 m (single-mode fiber)

Notes
Power consumption is 0.8 watts typical with 1 watt maximum at 100% utilization.
For distances less than 20 km, a 10 dB attenuator must be used.
For distances between 20 km and 40 km, a 5 dB attenuator must be used.
Attenuators can be purchased from most cable vendors.

Services
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.

HP X121 1G SFP LC SX Transceiver (J4858C)

A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550 m on multimode fiber.

Ports
1 LC 1000BASE-SX port; Duplex: full only

Physical characteristics
Dimensions: 2.24(d) x 0.54(w) x 0.48(h) in. (5.69 x 1.37 x 1.22 cm)
Weight: 0.04 lb. (0.02 kg)
Transceiver form factor: SFP

Environment
Operating temperature: 32°F to 158°F (0°C to 70°C)
Operating relative humidity: 5% to 85%, noncondensing
Nonoperating/Storage temperature: -40°F to 203°F (-40°C to 85°C)
Altitude: up to 10,000 ft. (3 km)

Electrical characteristics
Power consumption typical: 0.4 W
Power consumption maximum: 0.7 W

Cabling
Type:

- 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively;

Maximum distance:

- 2-220 m (62.5 µm core diameter, 160 MHz*km bandwidth
- 2-275 m (62.5 µm core diameter, 200 MHz*km bandwidth
- 2-500 m (50 µm core diameter, 400 MHz*km bandwidth)
- 2-550 m (50 µm core diameter, 500 MHz*km bandwidth)

Cable length: 2-550m
Fiber type: Multi Mode

Services
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.

Accessory Product Details

HP X121 1G SFP LC LX Transceiver (J4859C)

HP X121 1G SFP LC LX Transceiver: An SFP format gigabit transceiver with LC connectors using LX technology.

Ports	1 LC 1000BASE-LX port (IEEE 802.3z Type 1000BASE-LX); Duplex: full only
Physical characteristics	Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm) Weight:0.04 lb. (0.02 kg)
Environment	Operating temperature: 32°F to 158°F (0°C to 70°C) Operating relative humidity: 0% to 85%, noncondensing Nonoperating/Storage temperature: -40°F to 212°F (-40°C to 100°C) Altitude: up to 10,000 ft. (3 km)
Cabling	Type: • Either single mode or multimode; 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively; Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1; Maximum distance: • 2-550 m (multimode 62.5 µm core diameter, 500 MHz*km bandwidth) • 2-550 m (multimode 50 µm core diameter, 400 MHz*km bandwidth) • 2-550 m (multimode 50 µm core diameter, 500 MHz*km bandwidth) • 2-10,000 m (single-mode fiber)
Notes	A mode conditioning patch cord may be needed in some multimode fiber installations. Wavelength: 1310nm Power Consumption: < 500mW Typical
Services	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.

HP X122 1G SFP LC BX-D Transceiver (J9142B)

A small form-factor pluggable (SFP) Gigabit-BX (bi-directional) "downstream" transceiver that provides a full-duplex Gigabit solution up to 10 km on one strand of single-mode fiber. The J9142B connects to the J9143B "upstream" transceiver, or to any IEEE-standard 1000BASE-BX10-U ("upstream") device.

Ports	1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D); Duplex: full only	
Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
	Weight	0.04 lb. (0.02 kg)
Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
	Operating relative humidity	0% to 95%, non-condensing
	Non-operating/ Storage temperature	–40ºF to 185ºF –40ºC to 85ºC)
Cabling	Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)	
Notes	Transmit wavelength: 1490 nm. Receive wavelength: 1310 nm. Power consumption is 1 watt maximum. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HP BX Transceivers" on the	

			"HP Mini-GBICs and SFPs" Manuals Web page. The J9142B connects to the J9143B "upstream" transceiver, or to any IEEE-standard 1000BASE-BX10-U ("upstream") device. (A 1000-BX-D transceiver can only connect to a 1000-BX-U product. You cannot connect two 1000-BX-D transceivers together.)
	Services		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.

HP X122 1G SFP LC BX-U Transceiver (J9143B) A small form-factor pluggable (SFP) Gigabit-BX (bi-directional) "upstream" transceiver that provides a full-duplex Gigabit solution up to 10 km on one strand of single-mode fiber. The J9143B connects to the J9142B "downstream" transceiver, or to any IEEE-standard 1000BASE-BX10-D ("downstream") device.	**Ports**		1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only
	Physical characteristics	**Dimensions**	2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
		Weight	0.04 lb. (0.02 kg)
	Environment	**Operating temperature**	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	0% to 95%, non-condensing
		Non-operating/ Storage temperature	–40ºF to 185ºF –40ºC to 85ºC)
	Cabling		Type: Single-mode fiber optic, complying with ITU-T G.652; Maximum distance: • 0.5-10,000 m (single-mode fiber)
	Notes		Transmit wavelength: 1310 nm. Receive wavelength: 1490 nm. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HP BX Transceivers" on the "HP Mini-GBICs and SFPs" Manuals Web page. The J9143B connects to the J9142B "downstream" transceiver, or to any IEEE-standard 1000BASE-BX10-D ("downstream") device. (A 1000-BX-U transceiver can only connect to a 1000-BX-D product. You cannot connect two 1000-BX-U transceivers together.) Power consumption is 1 watt maximum.
	Services		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.

Accessory Product Details

HP X242 SFP+ SFP+ 1 m Direct Attach Cable (J9281B)	**Connectivity**	Length	3.28 ft. (1 m)
	Physical characteristics	Weight	0.24 lb. (0.11 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

HP X242 SFP+ SFP+ 3 m Direct Attach Cable (J9283B)	**Connectivity**	Length	10 ft. (3 m)
	Physical characteristics	Weight	.49 lb. (0.22 kg), Fully loaded the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

Accessory Product Details

HP X242 SFP+ SFP+ 7 m Direct Attach Cable (J9285B)	**Connectivity**	Length	22.97 ft. (7 m)
	Physical characteristics	Weight	1.02 lb., Fully loaded the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32ºF to 158ºF (0ºC to 70ºC)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14ºF to 185ºF (-10ºC to 85ºC)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical glass: Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical glass: Bandwidth: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber and designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters.

Accessory Product Details

		• Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.
HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.

Accessory Product Details

HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.
HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)	**Cabling**	**Cable type**: 50/125 µm core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: This specification defines the detail requirements for a tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links.

		• CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.
HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.

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HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.
HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)	**Cabling**	**Cable type**: 50/125 µm (core/cladding) diameter, mulitimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m; **Maximum distance**: 10Gbps Transfer Rate (Ethernet): 300m
	Notes	Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125 um fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end. • Dimensions: Core diameter: 50 ± 3.0um Cladding diameter: 125 ± 2.0um Coating diameter: 245 ± 10um • Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm. • Optical Glass: For Laser sources: 2000/500 MHz-km @850/1300nm. VCSEL Laser sources: Shall achieve 600 / 600 meters @850/1300nm for Gigabit Ethernet compliant links. • CABLE: The cable is duplex zipcord graded index 50/125um multimode

		optical fiber. The cable is designed to work in both the 850 and 1300 nm wavelength windows. • BULK CABLE & CABLE ASSEMBLY CONFIGURATION: • Jacket Material: Riser Grade - Low Smoke Zero Halogen thermoplastic. • Jacket Color: Aqua for OM3 multimode per TIA 598 • Boot Color: White • Insertion Loss: less than 0.5 dB @ 850 with LED source, 0.003 dB/M added for lengths > 30 meters. • Maximum Cable attenuation: 3.0 dB/km @ 850 nm, 1.0 dB/Km @ 1310 nm @ 23°C as tested in accordance with EIA 455-46. • Weight: Air Packed Weight: 1 LB Net Weight: 0.454Kg
	Services	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core Diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.

Accessory Product Details

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.

Accessory Product Details

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.

Accessory Product Details

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)	**Notes**	Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end. • Core diameter: 50um ±3um, Cladding diameter: 125um ±2um; Coating diameter: 245 ± 10um • Bandwidth: 3000 MHz-km @ 850nm (Laser) • Jacket Color: Blue • Jacket Material: Riser Grade – Low Smoke Zero Halogen (LSZH) thermoplastic • Boot Color: White • Outer Jacket Print: HP PremierFlex OM3+ Fiber Optic Cable, 50/125um, Type OFNR (UL), LSZH, cUL, OFN FT4, ROHS. Cable also has a longitudinal white stripe that runs the entire length of the cable. • Insertion Loss: Less than 0.5dB @ 850nm with LED source, 0.003dB/m added for lengths >30m • Maximum Cable Attenuation: 3.0 dB/km @ 850nm, 1.0 dB/km @ 1310nm @ 23°C as tested in accordance with EIA 455-45
	Services	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.

HP BLc SFP+ 0.5m 10GbE Copper Cable (487649-B21)	**Connectivity**	Length	1.64 ft. (0.5 m)
	Physical characteristics	Weight	.18 lb. (0.08 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14°F to 185°F (-10°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

Accessory Product Details

HP BLc SFP+ 1m 10GbE Copper Cable (487652-B21)	**Connectivity**	Length	3.28 ft. (1 m)
	Physical characteristics	Weight	.24 lb. (0.11 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14°F to 185°F (-10°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

HP BLc SFP+ 3m 10GbE Copper Cable (487655-B21)	**Connectivity**	Length	9.84 ft. (3 m)
	Physical characteristics	Weight	0.49 lb. (0.22 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14°F to 185°F (-10°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

Accessory Product Details

HP BLc SFP+ 5m 10GbE Copper Cable (537963-B21)	**Connectivity**	Length	16.40 ft. (5 m)
	Physical characteristics	Weight	0.75 lb. (0.34 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14°F to 185°F (-10°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

HP BLc SFP+ 7m 10GbE Copper Cable (487658-B21)	**Connectivity**	Length	22.96 ft. (7 m)
	Physical characteristics	Weight	1.01 lb. (0.46 kg) the cable with an SFP+ transceiver at each end of the cable
	Environment	Operating temperature	32°F to 158°F (0°C to 70°C)
		Operating relative humidity	5% to 95%, noncondensing
		Nonoperating/Storage temperature	14°F to 185°F (-10°C to 85°C)
		Nonoperating/Storage relative humidity	5% to 95%, noncondensing
		Altitude	up to 10,000 ft. (3 km)
	Electrical characteristics	Notes	0.04 watts maximum per transceiver end
	Notes	Electrical Properties • Cable Characteristic Impedance: 100 ohms • Crosstalk between pairs: 2% max • Time delay: 1.31 nsec/ft Physical Properties • Cable Diameter: 0.180" • Minimum Cable Bend Radius: 1.0"	
	Services	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.	

HP 620	**Ports**	2 redundant power supply ports

Accessory Product Details

Redundant/External Power Supply (J8696A)			Restrictions: 195 W available per port 2 external power supply ports Restrictions: 398 W available per port
	Physical characteristics	**Dimensions**	15.4(d) x 17.4(w) x 1.73(h) in. (39.12 x 44.2 x 4.39 cm) (1U height)
		Weight	15.2 lb. (6.89 kg)
	Mounting		Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
		Acoustic	LwA per ISO 7779: 54.2 dB
	Electrical characteristics	**Maximum heat dissipation**	400 BTU/hr (422 kJ/hr), for the actual 620 itself. PoE-powered device heat dissipation assumed to be outside the 620.
		Voltage	100-127/200-240 VAC
		Current	16/8 A
		Maximum power rating	1440 W
		RPS power	390 W
		PoE power	796 W
		RPS	12 V
		PoE	-50 V
		Frequency	50/60 Hz
		Notes	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. Above figures are for maximum RPS and PoE power being supplied to two switches simultaneously. 200 - 240 V power cords shipped with the 620 have a wall plug rated as close to 13 A as specific country standards allow.
	Safety		CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950
	Emissions		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
	Immunity	**EN**	EN 55024, CISPR 24
		ESD	IEC 61000-4-2
		Radiated	IEC 61000-4-3
		EFT/Burst	IEC 61000-4-4

		Surge	IEC 61000-4-5
		Conducted	IEC 61000-4-6
		Power frequency magnetic field	IEC 61000-4-8
		Voltage dips and interruptions	IEC 61000-4-11
		Harmonics	EN 61000-3-2, IEC 61000-3-2
		Flicker	EN 61000-3-3, IEC 61000-3-3
	Management		Unmanaged power supply; provides information via LEDs (LEDs repeated on front and back panel) or through port interfaces of attached devices
	Notes		The 620 supports the HP Switch 2900 Series (RPS) and 3500yl Series (RPS/PoE), as well as 6200yl (RPS) switches. The HP Switch 5400zl Series is not supported. The 620 includes four 2 m RPS/EPS cables. These cables can be used to carry either RPS or PoE power to the switch being powered.
	Services		3-year, 4-hour onsite, 13x5 coverage for hardware (U9270E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U9271E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR854E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR855E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR857E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR858E) 3 Yr 6 hr Call-to-Repair Onsite (UW371E) 4 Yr 6 hr Call-to-Repair Onsite (UW372E) 5 Yr 6 hr Call-to-Repair Onsite (UW373E) 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.

HP 630 Redundant and/or External Power Supply (J9443A)	**Physical characteristics**	**Dimensions**	15(d) x 8.5(w) x 1.73(h) in. (38.1 x 21.59 x 4.39 cm) (1U height)
		Weight	7.9 lb. (3.58 kg)
	Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
		Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
		Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
		Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing
		Altitude	up to 10,000 ft. (3 km)
		Acoustic	Power: 54.2 dB; ISO 7779, ISO 9296
	Electrical characteristics	**Maximum heat dissipation**	535 BTU/hr (564.42 kJ/hr), for the actual 630 power supply. PoE-powered device heat dissipation assumed to be outside the 630 power supply.
		Voltage	100-127/200-240 VAC
		Current	8/4 A

Maximum power rating	740 W
PoE power	398 W
RPS power	185 W
PoE power	398 W
Frequency	50/60 Hz
Notes	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 a External Power Supply (EPS). 200-240 V power cords shipped with the 630 power supply have a wall plug rated as close to 13 A as specific country standards allow.

Notes	The HP 630 RPS/EPS supports the HP 2910al and 3500yl-PoE+ Switches. The HP Switch 5400zl Series is not supported. The 630 RPS/EPS includes two 2-m RPS/EPS cables, which can bes used to carry either RPS or PoE+ power to the switch. Minimum software versions required: 2910al PoE+ switches require W.14.35 or later and 3500yl-PoE+ switches require K.14.52 or later
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U9270E) 3-year, 4-hour onsite, 24x7 coverage for hardware (U9271E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR854E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR855E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR857E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR858E) 3 Yr 6 hr Call-to-Repair Onsite (UW371E) 4 Yr 6 hr Call-to-Repair Onsite (UW372E) 5 Yr 6 hr Call-to-Repair Onsite (UW373E) 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.

Accessory Product Details

HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)	**Notes**	The rack mounting kit supports the 1U, full width switches in the following switch series and the power supply: V1810 Series, E2510 Series, E2520 Series, E2610 Series, E2810 Series, E2910 Series, E3500 Series, and the E620 Power Supply This universal rack mounting kit is design to fit the following racks: HP 10K 10642, HP 10K 10842, Panduit CN, Panduit CS, Wrightline Vantage S2, APC Netshelter 600mm, and APC Netshelter 800mm. It may well fit many other brands and models too.
	Services	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.

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