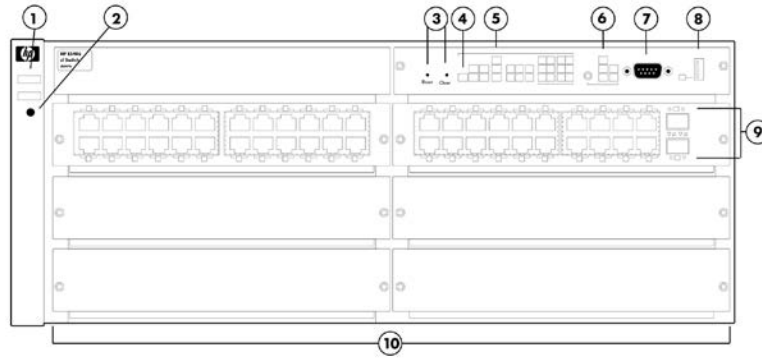


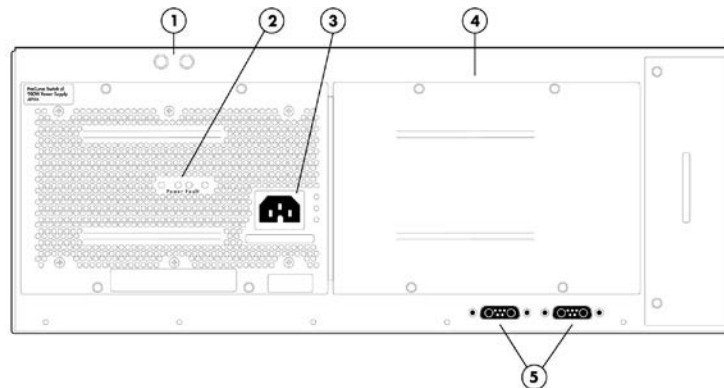
### Overview

### HPE 5400 zl Switch Series



#### HP 5406-48G zl Switch

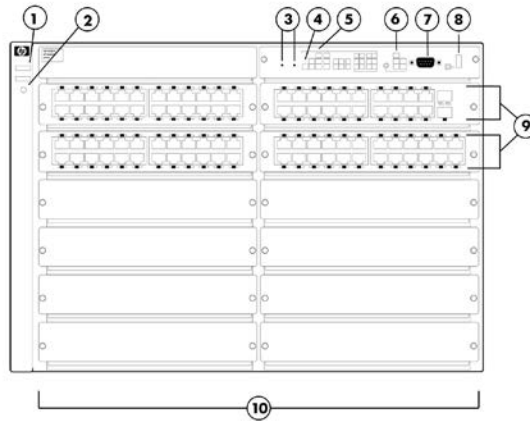
- |   |  |    |   |
|---|--|----|---|
| 1 | Power and Fault LEDs   | 6  | LED Mode Select button and indicator LEDs   |
| 2 | Locator LED  | 7  | Console Port  |
| 3 | Reset and Clear buttons                                      | 8  | Auxiliary Port  |
| 4 | Self Test LED  | 9  | Module Link and Mode LEDs   |
| 5 | Status LEDs for the Fans, Power Supplies, and Switch Modules | 10 | Switch Modules and slots with Link and Mode LEDs for each port located on each module |



#### HP 5406-48G zl Switch Rear View

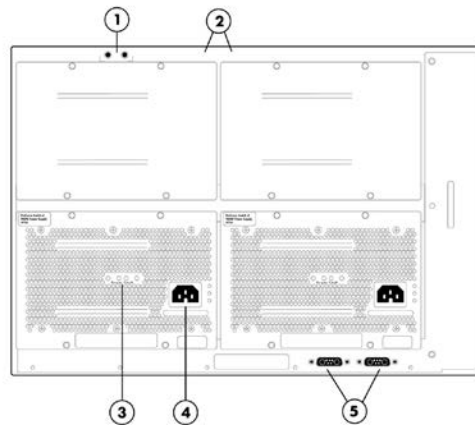
- |   |                              |   |   |
|---|------------------------------|---|---|
| 1 | Grounding lug mounting holes | 3 | AC power connector                                  |
| 2 | Power and Fault LEDs         | 4 | Slot for installing optional redundant power supply |
|   |                              | 5 | External PoE power connectors                       |

Overview



HP 5412-92G zl Switch

- |   |  |    |   |
|---|--|----|---|
| 1 | Power and Fault LEDs   | 6  | LED Mode Select button and indicator LEDs   |
| 2 | Locator LED  | 7  | Console Port  |
| 3 | Reset and Clear buttons                                      | 8  | Auxiliary Port  |
| 4 | Self Test LED  | 9  | Module Link and Mode LEDs   |
| 5 | Status LEDs for the Fans, Power Supplies, and Switch Modules | 10 | Switch Modules and slots with Link and Mode LEDs for each port located on each module |



HP 5412-92G zl Switch Rear View

- |   |                              |   |   |
|---|------------------------------|---|---|
| 1 | Grounding lug mounting holes | 3 | Slot for installing optional redundant power supply |
| 2 | Power and Fault LEDs         | 4 | AC power connector                                  |
|   |                              | 5 | External PoE power connectors                       |

Models

HP 5406 zl Switch with Premium Software	J9642A
HP 5412 zl Switch with Premium Software	J9643A
HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software	J9533A
HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software	J9532A
HP 5406-44G-PoE+-4G-SFP v2 zl Switch with Premium Software	J9539A
HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software	J9540A
HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software	J9866A

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## Overview

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### Key Features

- Advanced access layer, distribution, and core
  - Integrated L2-to-L4 intelligent edge feature set
  - Enterprise-class performance and security
  - AllianceOne integrated
  - Scalable 10/100/1000 and 10GbE connectivity
- 

### Product overview

The HPE 5400 zl Switch Series consists of advanced intelligent switches in the HPE modular chassis product line, which includes 6-slot and 12-slot chassis as well as associated zl modules and bundles. The foundation for the switch series is a purpose-built, programmable Hewlett Packard Enterprise ProVision ASIC that allows the most demanding networking features, such as quality of service (QoS) and security, to be implemented in a scalable, yet granular, fashion. With 10/100/1000 and 10GbE connectivity; PoE+ and non-PoE options; integrated L3 features; and Hewlett Packard Enterprise AllianceOne solutions, the 5400 zl Switch Series offers excellent investment protection, flexibility, and scalability as well as ease of deployment, operation, and maintenance.

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### Features and Benefits

#### Software-defined networking

- **OpenFlow**  
supports OpenFlow 1.0 and 1.3 specifications to enable SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths

#### Unified Wired and Wireless

- **HTTP redirect function**  
supports HPE Intelligent Management Center (IMC) bring your own device (BYOD) solution

#### Quality of Service (QoS)

- **Advanced classifier-based QoS**  
classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
- **Layer 4 prioritization**  
enables prioritization based on TCP/UDP port numbers
- **Traffic prioritization**  
allows real-time traffic classification into eight priority levels mapped to eight queues
- **Bandwidth shaping**
  - **Port-based rate limiting**  
provides per-port ingress-/egress-enforced increased bandwidth
  - **Classifier-based rate limiting**  
uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
  - **Guaranteed minimum**  
provides per-port, per-queue egress-based reduced bandwidth
- **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

## Overview

### Management

- **Remote intelligent mirroring**  
mirrors selected ingress/egress traffic based on an ACL, port, MAC address, or VLAN to a local or remote HPE 8200 zl, 6600, 6200 yl, 5400 zl, or 3500 switch anywhere on the network
- **RMON, XRMON, and sFlow v5**  
provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**  
advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- **Uni-Directional Link Detection (UDLD)**  
monitors a cable between two switches and shuts down the ports on both ends if the cable is broken, turning the bidirectional link into a unidirectional one; this prevents network problems such as loops
- **Management simplicity**  
provides common software features and CLI implementation across all HPE ProVision-based switches (including the zl and yl switches)
- **Command authorization**  
leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity
- **Friendly port names**  
allow assignment of descriptive names to ports
- **Dual flash images**  
provide independent primary and secondary operating system files for backup while upgrading
- **Multiple configuration files**  
can be stored to the flash image
- **Comware CLI**
  - **Comware-compatible CLI**  
bridges the experience of Hewlett Packard Enterprise Comware CLI users who are using the ProVision CLI
  - **Display and fundamental Comware CLI commands**  
are natively embedded in the switch CLI; display output is formatted as on Comware-based switches; fundamental commands provide Comware-familiar initial switch setup
  - **Configuration Comware CLI commands**  
when Comware commands are entered, CLI help is elicited to formulate the correct ProVision software CLI command

### Connectivity

- **IEEE 802.3az Energy Efficient Ethernet**  
lowers power consumption in periods of low link usage (supported on v2 zl 10/100/1000 and 10/100 modules)
- **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- and PoE+-powered devices, such as video IP phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras
- **Prestandard PoE support**  
detects and provides power to pre-standard PoE devices (refer to the list of supported devices in the product FAQs, which can be accessed at [hpe.com/networking](http://hpe.com/networking))
- **High-density port connectivity**  
provides up to 12 interface module slots and up to 288 wire-speed 10/100/1000 PoE-enabled ports or 96 10-GbE ports

## Overview

per system

- **Jumbo frames**  
on Gigabit Ethernet and 10-Gigabit Ethernet ports, jumbo frames allow high-performance remote backup and disaster-recovery services
- **Auto-MDIX**  
automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **IPv6**
  - **IPv6 host**  
enables switches to be managed in an IPv6 network
  - **Dual stack (IPv4 and IPv6)**  
transitions from IPv4 to IPv6, supporting connectivity for both protocols
  - **MLD snooping**  
forwards IPv6 multicast traffic to the appropriate interface
  - **IPv6 ACL/QoS**  
supports ACL and QoS for IPv6 network traffic
  - **IPv6 routing**  
supports static and OSPFv3 routing protocols
  - **6in4 tunneling**  
supports encapsulation of IPv6 traffic in IPv4 packets
  - **Security**  
provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown

## Performance

- **High-speed, high-capacity architecture**  
1 Tbps crossbar switching fabric provides intra-module and inter-module switching with 585.6 million pps throughput on the purpose-built ProVision ASICs
- **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

- **NEW Virtual Router Redundancy Protocol (VRRP)**  
allows groups of two routers to dynamically back each other up to create highly available routed environments for IPv4 and IPv6 networks
- **IEEE 802.1s Multiple Spanning Tree Protocol**  
provides high link availability in multiple VLAN environments by allowing multiple spanning trees; encompasses IEEE 802.1D Spanning Tree Protocol and IEEE 802.1w Rapid Spanning Tree Protocol
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and Hewlett Packard Enterprise port trunking**  
support up to 144 trunks, each with up to eight links (ports) per trunk
- **Distributed trunking**  
enables loop-free and redundant network topology without using Spanning Tree Protocol; allows a server or switch to connect to two switches using one logical trunk for redundancy and load sharing
- **Optional redundant power supply (HPE 5400 series)**  
provides uninterrupted power and allows hot-swapping of the redundant power supplies when installed
- **Hot-swappable modules (5400 zl series)**  
permits modules, mini-GBICs, and power supplies in a redundant power supply configuration to be added or swapped without interrupting the network

## Overview

- **Sparing simplicity**  
includes HPE zl common accessories (interface modules and power supplies)
- **Uplink Failure Detection**  
provides active-standby network path redundancy for servers that are configured for active-standby NIC teaming
- **SmartLink**  
provides easy-to-configure link redundancy of active and standby links

## Layer 2 switching

- **VLAN support and tagging**  
supports the IEEE 802.1Q standard and 2,048 VLANs simultaneously
- **IEEE 802.1v protocol VLANs**  
isolate select non-IPv4 protocols automatically into their own VLANs
- **GARP VLAN Registration Protocol**  
allows automatic learning and dynamic assignment of VLANs
- **IEEE 802.1ad Q-in-Q**  
increases the scalability of an Ethernet network by providing a hierarchical structure; connects multiple LANs on a high-speed campus or metro network
- **MAC-based VLAN**  
provides granular control and security; uses RADIUS to map a MAC address/user to specific VLANs (requires v2 modules)
- **Rapid Per-VLAN Spanning Tree (RPVST+)**  
allows each VLAN to build a separate spanning tree to improve link bandwidth usage; is compatible with PVST+
- **Hewlett Packard Enterprise switch meshing**  
dynamically load balances across multiple active redundant links to increase available aggregate bandwidth; allows concurrent Layer 3 routing with v2 modules

## Layer 3 services

- **User Datagram Protocol (UDP) helper function**  
allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevents server spoofing for UDP services such as DHCP
- **Loopback interface address**  
defines an address in Routing Information Protocol (RIP) and Open Standard Path First (OSPF), improving diagnostic capability
- **Route maps**  
provide more control during route redistribution; allow filtering and altering of route metrics
- **DHCP server**  
centralizes and reduces the cost of IPv4 address management

## Layer 3 routing

- **Static IP routing**  
provides manually configured routing for both IPv4 and IPv6 networks
- **Routing Information Protocol (RIP)**  
provides RIPv1 and RIPv2 routing
- **OSPF**  
provides OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing
- **Policy-based routing**  
uses a classifier to select traffic that can be forwarded based on policy set by the network administrator (requires v2 or

## Overview

higher modules)

- **Border Gateway Protocol (BGP)**  
provides IPv4 Border Gateway Protocol routing, which is scalable, robust, and flexible

## Security

- **Access control lists (ACLs)**  
provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on per-VLAN or per-port basis
- **Multiple user authentication methods**
  - **IEEE 802.1X users per port**  
provides authentication of multiple IEEE 802.1X users per port
  - **Web-based authentication**  
authenticates from a Web browser for clients that do not support IEEE 802.1X supplicant
  - **MAC-based authentication**  
client is authenticated with the RADIUS server based on the client's MAC address
  - **Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port**  
switch port accepts up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- **Virus throttling**  
detects traffic patterns typical of worm-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs or bridged interfaces without requiring external appliances
- **DHCP protection**  
blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Secure management access**  
securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
- **Switch CPU protection**  
provides automatic protection against malicious network traffic trying to shut down the switch
- **ICMP throttling**  
defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic
- **Identity-driven ACL**  
enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- **STP BPDU port protection**  
blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- **Dynamic IP lockdown**  
works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing
- **Dynamic ARP protection**  
blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **STP Root Guard**  
protects the root bridge from malicious attacks or configuration mistakes
- **Detection of malicious attacks**  
monitors 10 types of network traffic and sends a warning when an anomaly that potentially can be caused by malicious attacks is detected
- **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
- **Source-port filtering**  
allows only specified ports to communicate with each other
- **RADIUS/TACACS+**

## Overview

eases switch management security administration by using a password authentication server

- **Secure Shell**  
encrypts all transmitted data for secure remote CLI access over IP networks
- **Secure Sockets Layer (SSL)**  
encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- **Secure FTP**  
allows secure file transfer to and from the switch; protects against unwanted file downloads or unauthorized copying of a switch configuration file
- **Management Interface Wizard**  
helps secure management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB at the desired level
- **Switch management logon security**  
can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **Security banner**  
displays a customized security policy when users log in to the switch

## Convergence

- **IP multicast routing**  
includes PIM Sparse and Dense modes to route IP multicast traffic
- **IP multicast snooping** (data-driven IGMP)  
automatically prevents 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
- **PoE allocations**  
support multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user specified) to allocate PoE power for more efficient energy savings
- **Auto VLAN configuration for voice**
  - RADIUS VLAN: uses a standard RADIUS attribute and LLDP-MED to automatically configure a VLAN for IP phones
  - CDPv2: uses CDPv2 to configure legacy IP phones
- **Local MAC Authentication**  
assigns attributes such as VLAN and QoS using locally configured profile that can be a list of MAC prefixes

## Warranty and support

- **Limited Lifetime Warranty v2.0**  
see <http://www.hpe.com/networking/warrantysummary> for warranty and support information included with your product purchase.
- **Software releases**  
to find software for your product, refer to <http://www.hpe.com/networking/support>; for details on the software releases available with your product purchase, refer to <http://www.hpe.com/networking/warrantysummary>



## 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 5406 zl Switch with Premium Software	J9642A
<ul style="list-style-type: none"> <li>• 1 Power Supply required</li> <li>• 4U - Height</li> </ul>	
HP 5406-44G-PoE+-2XG v2 zl Swch w Pm SW	J9533A
<ul style="list-style-type: none"> <li>• 44 autosensing 10/100/1000 port</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)</li> <li>• 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 5, 9
PDU Cable NA/MEX/TW/JP	J9533A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9533A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9533A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5406-44G-PoE+-4G v2 zl Swch w Prm SW	J9539A
<ul style="list-style-type: none"> <li>• 44 autosensing 10/100/1000 port</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers)</li> <li>• 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 2, 5, 9
PDU Cable NA/MEX/TW/JP	J9539A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9539A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9539A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5406 8p10GT 8p10GE Swch and Psw	J9866A
<ul style="list-style-type: none"> <li>• 8 RJ-45 10GbE ports</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included</li> </ul>	See Configuration <b>NOTE:</b> 1, 5, 9

## Configuration

<ul style="list-style-type: none"> <li>• 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)</li> <li>• 4U - Height</li> </ul>	
PDU Cable NA/MEX/TW/JP	J9866A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9866A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9866A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5412 zl Switch with Premium Software	J9643A
<ul style="list-style-type: none"> <li>• 2 Power Supplies required</li> <li>• 7U - Height</li> </ul>	
HP 5412-92G-PoE+-2XG v2 zl Swch w Pm SW	J9532A
<ul style="list-style-type: none"> <li>• 92 autosensing 10/100/1000 port</li> <li>• 2 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included(min=0 \ max=2 SFP+ Transceivers)</li> <li>• 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 5, 9
PDU Cable NA/MEX/TW/JP	J9532A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9532A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9532A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5412-92G-PoE+-4G v2 zl Swch w Prm SW	J9540A
<ul style="list-style-type: none"> <li>• 92 autosensing 10/100/1000 port</li> <li>• 2 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)</li> <li>• 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 2, 5, 9
PDU Cable NA/MEX/TW/JP	J9540A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9540A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9540A#B2E

## Configuration

- NEMA L6-20P Cord (NA/MEX/JP/TW)

### Configuration Rules:

Note 1 The following Transceivers install into this Chassis :

J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J8177C -HP X121 1G SFP RJ45 T Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9153A - HP X132 10G SFP+ LC ER Transceiver  
 J9151A - HP X132 10G SFP+ LC LR Transceiver  
 J9152A - HP X132 10G SFP+ LC LRM Transceiver  
 J9150A - HP X132 10G SFP+ LC SR Transceiver  
 J9281B - HP X242 SFP+ SFP+ 1m Direct Attach Cable  
 J9283B - HP X242 SFP+ SFP+ 3m Direct Attach Cable  
 J9285B - HP X242 SFP+ SFP+ 7m Direct Attach Cable  
 J9300A - HP X244 XFP SFP+ 1m Direct Attach Cable  
 J9301A - HP X244 XFP SFP+ 3m Direct Attach Cable  
 J9302A - HP X244 XFP SFP+ 5m Direct Attach Cable

Note 2 The following Transceivers install into this switch:

J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J8177C -HP X121 1G SFP RJ45 T Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9054C - HP X111 100M SFP LC FX Transceiver

Note 5 If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in North America, Mexico Taiwan, and Japan)

Note 9 Localization required on orders without #B2B, #B2C or #B2E options.

## Box Level Integration CTO Models

### CTO Solution Sku

HP 54xx CTO Switch Solution J9809A

- SSP trigger sku

### CTO Switch Chassis

HP 5406 zl Switch with Premium Software J9642A

- 1 Power Supply required See
- 4U - Height Configuration

**NOTE:**4, 10

## Configuration

HP 5406-44G-PoE+-2XG v2 zl Swch w Pm SW	J9533A
<ul style="list-style-type: none"> <li>• 44 autosensing 10/100/1000 port</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)</li> <li>• 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP	J9533A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9533A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9533A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5406-44G-PoE+-4G v2 zl Swch w Prm SW	J9539A
<ul style="list-style-type: none"> <li>• 44 autosensing 10/100/1000 port</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers)</li> <li>• 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP	J9539A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9539A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9539A#B2E
<ul style="list-style-type: none"> <li>• NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5406 8p10GT 8p10GE Swch and Psw	J9866A
<ul style="list-style-type: none"> <li>• 8 RJ-45 10GbE ports</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included</li> <li>• 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP	J9866A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9866A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9866A#B2E

## Configuration

<ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5412 zl Switch with Premium Software	J9643A
<ul style="list-style-type: none"> <li>2 Power Supplies required</li> <li>7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 4, 10
HP 5412-92G-PoE+-2XG v2 zl Swch w Pm SW	J9532A
<ul style="list-style-type: none"> <li>92 autosensing 10/100/1000 port</li> <li>2 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)</li> <li>3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP	J9532A#B2B
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9532A#B2C
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9532A#B2E
<ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	
HP 5412-92G-PoE+-4G v2 zl Swch w Prm SW	J9540A
<ul style="list-style-type: none"> <li>92 autosensing 10/100/1000 port</li> <li>2 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)</li> <li>3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 8, 10, 12
PDU Cable NA/MEX/TW/JP	J9540A#B2B
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9540A#B2C
<ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (ROW)</li> </ul>	
High Volt Switch to Wall Power Cord	J9540A#B2E
<ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	

### Configuration Rules:

Note 1	The following Transceivers install into this Chassis : (Use #0D1 or #B01 if switch is CTO) - if applicable J4858C - HP X121 1G SFP LC SX Transceiver J4859C - HP X121 1G SFP LC LX Transceiver J4860C - HP X121 1G SFP LC LH Transceiver J8177C -HP X121 1G SFP RJ45 T Transceiver
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## Configuration

J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9153A - HP X132 10G SFP+ LC ER Transceiver  
 J9151A - HP X132 10G SFP+ LC LR Transceiver  
 J9152A - HP X132 10G SFP+ LC LRM Transceiver  
 J9150A - HP X132 10G SFP+ LC SR Transceiver  
 J9281B - HP X242 SFP+ SFP+ 1m Direct Attach Cable  
 J9283B - HP X242 SFP+ SFP+ 3m Direct Attach Cable  
 J9285B - HP X242 SFP+ SFP+ 7m Direct Attach Cable  
 J9300A - HP X244 XFP SFP+ 1m Direct Attach Cable  
 J9301A - HP X244 XFP SFP+ 3m Direct Attach Cable  
 J9302A - HP X244 XFP SFP+ 5m Direct Attach Cable

- Note 2 The following Transceivers install into this Chassis : (Use #0D1 if switch is CTO) - if applicable  
 J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J8177C -HP X121 1G SFP RJ45 T Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9054C - HP X111 100M SFP LC FX Transceiver
- Note 4 Localization required on orders without #B2B, #B2C or #B2E options.
- Note 8 If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in North America, Mexico Taiwan, and Japan)
- Note 10 If the Switch Chassis is to be Factory Integrated (CTO), Then the #0D1 is required on the Switch Chassis and integrated to the J9809A - HPE 5400 CTO Enablement. (Min 1/Max 1 Switch per SSP)
- Note 12 If this Switch is selected, Then a Minimum of 1 factory integrated accessory must be ordered and integrated to CTO chassis. See Menu below, option must have a #0D1 to be integrated to the CTO Chassis.

## Rack Level Integration CTO Models

### CTO Switch Chassis

HP 5406 zl Switch with Premium Software

- 1 Power Supply required
- 4U - Height

J9642A  
 See  
 Configuration  
**NOTE:11**

HP 5406-44G-PoE+-2XG v2 zl Swch w Pm SW

- 44 autosensing 10/100/1000 port
- 1 - J9306A HP 1500 W PoE+ zl Power Supply included
- 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included (min=0 \ max=2 SFP+ Transceivers)
- 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included

J9533A  
 See  
 Configuration  
**NOTE:1, 4, 11**

## Configuration

<ul style="list-style-type: none"> <li>• 4U - Height</li> </ul>	
PDU Cable NA/MEX/TW/JP	J9533A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9533A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
HP 5406-44G-PoE+-4G v2 zl Swch w Prm SW	J9539A
<ul style="list-style-type: none"> <li>• 44 autosensing 10/100/1000 port</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9535A HP 20-port GT PoE+/4-port SFP v2 zl Mod included (min=0 \ max=4 SFP Transceivers)</li> <li>• 1 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 11
PDU Cable NA/MEX/TW/JP	J9539A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9539A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
HP 5406 8p10GT 8p10GE Swch and Psw	J9866A
<ul style="list-style-type: none"> <li>• 8 RJ-45 10GbE ports</li> <li>• 1 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9546A HP 8-port 10GBASE-T v2 zl Module included</li> <li>• 1 - J9538A HP 8-port 10GbE SFP+ v2 zl Module included (min=0 \ max=8 SFP+ Transceivers)</li> <li>• 4U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 4, 11
PDU Cable NA/MEX/TW/JP	J9866A#B2B
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	
PDU Cable ROW	J9866A#B2C
<ul style="list-style-type: none"> <li>• C15 PDU Jumper Cord (ROW)</li> </ul>	
HP 5412 zl Switch with Premium Software	J9643A
<ul style="list-style-type: none"> <li>• 2 Power Supplies required</li> <li>• 7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 11
HP 5412-92G-PoE+-2XG v2 zl Swch w Pm SW	J9532A
<ul style="list-style-type: none"> <li>• 92 autosensing 10/100/1000 port</li> <li>• 2 - J9306A HP 1500 W PoE+ zl Power Supply included</li> <li>• 1 - J9536A HP 20-port Gig-T PoE+ / 2-port 10-GbE SFP+ v2 zl Module included(min=0 \ max=2 SFP+ Transceivers)</li> <li>• 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included</li> <li>• 7U - Height</li> </ul>	See Configuration <b>NOTE:</b> 1, 4, 11
PDU Cable NA/MEX/TW/JP	J9532A#B2B

## Configuration

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

PDU Cable ROW

J9532A#B2C

- C15 PDU Jumper Cord (ROW)

HP 5412-92G-PoE+-4G v2 zl Swch w Prm SW

J9540A

- 92 autosensing 10/100/1000 port
- 2 - J9306A HP 1500 W PoE+ zl Power Supply included
- 1 - J9535A HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module included (min=0 \ max=4 SFP Transceivers)
- 3 - J9534A HP 24-port Gig-T PoE+ v2 zl Module included
- 7U - Height

See  
Configuration  
**NOTE:**2, 4, 11

PDU Cable NA/MEX/TW/JP

J9540A#B2B

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

PDU Cable ROW

J9540A#B2C

- C15 PDU Jumper Cord (ROW)

Configuration Rules:

Note 1 The following Transceivers install into this Chassis : (Use #OD1 or #B01 if switch is CTO) - if applicable

J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J8177C -HP X121 1G SFP RJ45 T Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9153A - HP X132 10G SFP+ LC ER Transceiver  
 J9151A - HP X132 10G SFP+ LC LR Transceiver  
 J9152A - HP X132 10G SFP+ LC LRM Transceiver  
 J9150A - HP X132 10G SFP+ LC SR Transceiver  
 J9281B - HP X242 SFP+ SFP+ 1m Direct Attach Cable  
 J9283B - HP X242 SFP+ SFP+ 3m Direct Attach Cable  
 J9285B - HP X242 SFP+ SFP+ 7m Direct Attach Cable  
 J9300A - HP X244 XFP SFP+ 1m Direct Attach Cable  
 J9301A - HP X244 XFP SFP+ 3m Direct Attach Cable  
 J9302A - HP X244 XFP SFP+ 5m Direct Attach Cable

Note 2 The following Transceivers install into this Chassis : (Use #OD1 if switch is CTO) - if applicable

J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J8177C -HP X121 1G SFP RJ45 T Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J9054C - HP X111 100M SFP LC FX Transceiver

Note 4 Localization required on orders without #B2B, #B2C or #B2E options.



## Configuration

Note 11 If the CTO Switch Chassis needs to be racked, Then the CTO Base Model needs to integrate (with #OD1) to the HPE Rack.

## Modules

### I/O Modules

HP 20-port GT PoE+/4-port SFP v2 zl Mod

- min=0 \ max=4 SFP Transceivers

J9535A  
See  
Configuration  
**NOTE:1**

HP 24-port SFP v2 zl Module

- min=0 \ max=24 SFP Transceivers

J9537A  
See  
Configuration  
**NOTE:1**

HP 12p Gig-T PoE+/12p SFP v2 zl Mod

- min=0 \ max=12 SFP Transceivers

J9637A  
See  
Configuration  
**NOTE:1**

HP 20-port Gig-T / 4-port SFP v2 zl Mod

- min=0 \ max=4 SFP Transceivers

J9549A  
See  
Configuration  
**NOTE:1**

HP 4-port 10GbE SFP+ zl Module

- min=0 \ max=4 SFP+ Transceivers

J9309A  
See  
Configuration  
**NOTE:2**

HP 8-port 10 GbE SFP+ v2 zl Module

- min=0 \ max=8 SFP+ Transceivers

J9538A  
See  
Configuration  
**NOTE:5**

HP 20p GT PoE+ / 2p SFP+ v2 zl Module

- min=0 \ max=2 SFP+ Transceivers

J9536A  
See  
Configuration  
**NOTE:5**

HP 20-port Gig-T / 2-port SFP+ v2 zl Mod

- min=0 \ max=2 SFP+ Transceivers

J9548A  
See  
Configuration  
**NOTE:5**

## Configuration

HP 4-Port 10 GbE X2 zl Module	J8707A
<ul style="list-style-type: none"> <li>min=0 \ max=2 X2 Transceivers</li> </ul>	See Configuration <b>NOTE:3</b>
HP 4-Port 10 GbE CX4 zl Module	J8708A
<ul style="list-style-type: none"> <li>min=0 \ max=2 CX4 Media Converter</li> </ul>	
HP 8-port 10GBase-T v2 zl Module	J9546A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 24-Port 10/100/1000 PoE zl Module	J8702A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 20p 10/100/1000 PoE+/4p MGBIC zl Mod	J9308A
<ul style="list-style-type: none"> <li>min=0 \ max=4 SFP Transceivers</li> </ul>	See Configuration <b>NOTE:1</b>
HP 20-Port Gig-T/4-Port Mini-GBIC zl Module	J8705A
<ul style="list-style-type: none"> <li>min=0 \ max=4 SFP Transceivers</li> </ul>	See Configuration <b>NOTE:12</b>
HP 24-Port Mini-GBIC zl Module	J8706A
<ul style="list-style-type: none"> <li>min=0 \ max=24 SFP Transceivers</li> </ul>	See Configuration <b>NOTE:12</b>
HP 24-Port 10/100/1000 PoE+ zl Module	J9307A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 24-port Gig-T PoE+ v2 zl Module	J9534A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 24-Port 10/100 PoE+ zl Module	J9478A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 24-port 10/100 PoE+ v2 zl Module	J9547A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP 24-port Gig-T v2 zl Module	J9550A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	
HP MSM775 zl Premium Controller Module	J9840A
<ul style="list-style-type: none"> <li>No Transceivers</li> </ul>	See Configuration <b>NOTE:10</b>

## Configuration

HP Surv Brch Com zl Mod pwrby Msft Lync

- No Transceivers. Double Height Module, takes up 2 Vertical slots\*

J9485A

See  
Configuration

**NOTE:**4, 6, 7, 8, 9

HP Advanced Services v2 zl Module w/ HDD

- No Transceivers

J9857A

See  
Configuration

**NOTE:**11

HP Advanced Services v2 zl Module w/ SSD

- No Transceivers

J9858A

See  
Configuration

**NOTE:**11

Configuration Rules:

Note 1 The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable

J9054C - HP X111 100M SFP LC FX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J9142B - HP X122 1G SFP LC BX-D Transceiver  
 J9143B - HP X122 1G SFP LC BX-U Transceiver  
 J8177C - HP X121 1G SFP RJ45 T Transceiver

Note 2 The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable

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

Note 3 The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable

J8436A - HP X131 10G X2 SC SR Transceiver  
 J8437A - HP X131 10G X2 SC LR Transceiver  
 J9144A - HP X131 10G X2 SC LRM Transceiver

Note 4 The following Upgrades install into this Module:

J9488A - Sangoma 2-port T1/E1/J1 Telephony Card  
 J9489A - Sangoma 4-port T1/E1/J1 Telephony Card  
 J9516A - Sangoma 4-port FXO Telephony Card  
 J9482A - Sangoma 4-port FXS Telephony Card

## Configuration

J9518A - Sangoma 2-port FXO / 2-port FXS Telephony Card  
J9487A - Sangoma 1-port T1/E1/J1 Telephony Card

- Note 5 The following Transceivers install into this Module: (Use #0D1 or #B01 if switch is CTO) - if applicable  
J4860C - HP X121 1G SFP LC LH Transceiver  
J4858C - HP X121 1G SFP LC SX Transceiver  
J4859C - HP X121 1G SFP LC LX Transceiver  
J9142B - HP X122 1G SFP LC BX-D Transceiver  
J9143B - HP X122 1G SFP LC BX-U Transceiver  
J8177C - HP X121 1G SFP RJ45 T Transceiver  
J9153A - HP X132 10G SFP+ LC ER Transceiver  
J9151A - HP X132 10G SFP+ LC LR Transceiver  
J9152A - HP X132 10G SFP+ LC LRM Transceiver  
J9150A - HP X132 10G SFP+ LC SR Transceiver  
J9281B - HP X242 SFP+ SFP+ 1m Direct Attach Cable  
J9283B - HP X242 SFP+ SFP+ 3m Direct Attach Cable  
J9285B - HP X242 SFP+ SFP+ 7m Direct Attach Cable  
J9300A - HP X244 XFP SFP+ 1m Direct Attach Cable  
J9301A - HP X244 XFP SFP+ 3m Direct Attach Cable  
J9302A - HP X244 XFP SFP+ 5m Direct Attach Cable
- Note 6 For Switches: J9643A, J9532A, J9540A; If this module is selected, Then Max = 4 Modules of any combination or pairing of the following modules: J9485A. Double Height Modules occupy 2 vertical slots.
- Note 7 If this module is selected, Then show following message:  
For better airflow, This module must be located on left side only in the following Switches: J9642A, J9533A, J9539A, J9866A  
For better airflow, It is preferred, but not required, that This module be located on left side only in the following Switches: J9643A, J9532A, J9540A.
- Note 8 For Switches J9642A, J9533A, J9539A, J9866A; If this module is selected, Then Max = 3 SLOTS on left side of chassis only, of any combination or pairing of the following modules: J9485A. Double Height Modules occupy 2 vertical slots.
- Note 9 This module occupies 2 Vertical Slots.
- Note 10 Maximum of this Module per Chassis:  
J9642A min=0\max=5 per Chassis  
J9533A, J9539A, J9866A, min=0\max=4 per Chassis  
J9643A, J9532A, J9540A, min=0\max=6 per Chassis  
There are no restrictions on which slots these modules may go in.
- Note 11 Maximum of this Module per Chassis:  
J9642A, J9533A, J9539A, J9866A, min=0\max=4 per Chassis  
J9643A, J9532A, J9540A, min=0\max=6 per Chassis  
There are no restrictions on which slots these modules may go in.
- Note 12 The following Transceivers install into this Module: (Use #0D1 if switch is CTO) - if applicable

## Configuration

J9054C - HP X111 100M SFP LC FX Transceiver  
 J4860C - HP X121 1G SFP LC LH Transceiver  
 J4858C - HP X121 1G SFP LC SX Transceiver  
 J4859C - HP X121 1G SFP LC LX Transceiver  
 J8177C - HP X121 1G SFP RJ45 T Transceiver

## Transceivers

### SFP Transceivers

HP X111 100M SFP LC FX Transceiver	J9054C
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 X121 1G SFP RJ45 T Transceiver	J8177C

### SFP+ Transceivers

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 10G SFP+ SFP+ 1m DAC Cable	J9281B#B01
HP X242 10G SFP+ SFP+ 3m DAC Cable	J9283B#B01
HP X242 10G SFP+ SFP+ 7m DAC Cable	J9285B#B01
HP X244 10G XFP SFP+ 1m DAC Cable	J9300A#B01
HP X244 10G XFP SFP+ 3m DAC Cable	J9301A#B01
HP X244 10G XFP SFP+ 5m DAC Cable	J9302A#B01

### X2 Transceivers

HP X131 10G X2 SC LR Transceiver	J8437A
HP X131 10G X2 SC LRM Transceiver	J9144A
HP X131 10G X2 SC SR Transceiver	J8436A

## Internal Power Supplies

J9642A System (std 0 // max 2) User Selection (min 1 / max 2)

J9533A, J9866A and J9539A System (std 1 // max 2) User Selection (min 0 / max 1)

J9643A System (std 0 // max 4) User Selection (min 2 / max 4)

J9532A and J9540A System (std 2 // max 4) User Selection (min 0 / max 2)

HP 1500 W PoE+ zl Power Supply

J9306A

## Configuration

<ul style="list-style-type: none"> <li>includes 1 x c15, 1500w</li> </ul>	See Configuration <b>NOTE:</b> 1, 2, 6
PDU Cable NA/MEX/TW/JP <ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	J9306A#B2B
PDU Cable ROW <ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (ROW)</li> </ul>	J9306A#B2C
High Volt Switch to Wall Power Cord <ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	J9306A#B2E
HP 875W zl Power Supply <ul style="list-style-type: none"> <li>includes 1 x c15, 875w</li> </ul>	J8712A See Configuration <b>NOTE:</b> 1, 2, 5, 6
PDU Cable NA/MEX/TW/JP <ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (NA/MEX/TW/JP)</li> </ul>	J8712A#B2B
PDU Cable ROW <ul style="list-style-type: none"> <li>C15 PDU Jumper Cord (ROW)</li> </ul>	J8712A#B2C
High Volt Switch to Wall Power Cord <ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	J8712A#B2E
HP 1500 W zl Power Supply <ul style="list-style-type: none"> <li>includes 1 x c19</li> </ul>	J8713A See Configuration <b>NOTE:</b> 1, 2, 5, 6
PDU Cable NA/MX/TW/JP <ul style="list-style-type: none"> <li>C19 PDU Jumper Cord (NA/MX/TW/JP)</li> </ul>	J8713A#B2B
PDU Cable ROW <ul style="list-style-type: none"> <li>C19 PDU Jumper Cord (ROW)</li> </ul>	J8713A#B2C
High Volt Switch to Wall Power Cord <ul style="list-style-type: none"> <li>NEMA L6-20P Cord (NA/MEX/JP/TW)</li> </ul>	J8713A#B2E

### Configuration Rules:

- Note 1      Power Supplies cannot be mixed for a switch enclosure
- Note 2      Localization required on orders without #B2B, #B2C or #B2E options.
- Note 5      This power supply is not supported on the J9533A, J9539A, J9532A, J9866A and J9540A switches.

## Configuration

Note 6 If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for switch . (Offered only in NA, Mexico, Taiwan, and Japan)

Remarks:

If Power Supply is added to switch with power supply, then Switch and Power Supply localization must match.

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)

High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)

## 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
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

### External Redundant Power Supplies

HP zl Power Supply Shelf

- Height = 3U

J8714A

See  
Configuration

**NOTE:1**

Configuration Rules:

Note 1 This power supply is not supported on the J9821A, J9868A, J9823A, J9824A, J9822A, J9825A and

## Configuration

J9826A switches.

Remarks: This shelf allows the addition of 2 extra J9306A - HPE 1500 W PoE+ zL Power Supply in order to increase the number of POE+ ports.

Cables included: includes two 2 m PoE (EPS) cables; cables can be used to carry PoE power to the connected switch; no extra cables are needed for a complete solution. Flexible mounting: the power shelf can be mounted forward or rear facing in a rack; in a four-post rack, two power shelves can be mounted front to front, requiring only 3U of rack space.

### Survivable Branch Communication Upgrades

Sangoma 2-port T1/E1/J1 Telephony Card	J9488A
Sangoma 4-port T1/E1/J1 Telephony Card	J9489A
Sangoma 4-port FXO Telephony Card	J9516A
Sangoma 4-port FXS Telephony Card	J9482A
Sangoma 2-port FXO / 2-port FXS Telephony Card	J9518A
Sangoma 1-port T1/E1/J1 Telephony Card	J9487A

Remarks: The Sangoma Telephony Cards are accessories to the J9485A.

### US Federal Government certifications

HP zL Chassis FIPS 10K Rack Mounting Kit	J9708A See Configuration <b>NOTE:1</b>
HP 16mm x 32mm Tmpr-Evidence (20) Labels	J9740A See Configuration <b>NOTE:1</b>
HP 16mm x 32mm Tmpr-Evidence (120) Label	J9709A See Configuration <b>NOTE:1</b>
HP 5406 zL FIPS Opacity Shield Kit	J9710A See Configuration <b>NOTE:1</b>
HP 5412 zL FIPS Opacity Shield Kit	J9711A See Configuration <b>NOTE:1</b>
HP 5406 zL High Performance Fan Tray	J9721A See



## Configuration

Configuration

**NOTE:1**

HP 5412 z1 High Performance Fan Tray

J9722A

See

Configuration

**NOTE:1**

Configuration Rules:

Note 1      Do not display in Watson.

## Technical Specifications

<b>HP 5406 zl Switch with Premium Software (J9642A)</b>	<b>I/O ports and slots</b>	6 open module slots
		Supports a maximum of 48 10-GbE ports or 144 autosensing 10/100/1000 ports or 144 mini-GBICs, or a combination
	<b>Power supplies</b>	2 power supply slots 1 minimum power supply required (ordered separately)
	<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
		<b>Weight</b> 23.55 lb (10.68 kg)
	<b>Memory and processor</b>	<b>Gigabit Module</b> ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
		<b>10G module</b> ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
		<b>Management Module</b> Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	<b>Mounting and enclosure</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
	<b>Performance</b>	<b>1000 Mb Latency</b> < 3.7 $\mu$ s (FIFO 64-byte packets)
		<b>10 Gbps Latency</b> < 2.1 $\mu$ s (FIFO 64-byte packets)
		<b>Throughput</b> up to 282.1 Mpps
		<b>Routing/Switching capacity</b> 379.2 Gbps
		<b>Switch fabric speed</b> 379.2 Gbps
		<b>Routing table size</b> 10000 entries (IPv4), 5000 entries (IPv6)
		<b>MAC address table size</b> 64000 entries
	<b>Environment</b>	<b>Operating temperature</b> 32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
		<b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 149°F (65°C), noncondensing
		<b>Altitude</b> up to 10,000 ft (3 km)
		<b>Acoustic</b> Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
	<b>Electrical characteristics</b>	<b>Frequency</b> 50/60 Hz
		Achieved Miercom Certified Green Award
		<b>Description</b> Chassis ships without power supplies. Two power supply slots are available; three different power supplies are available. See power supply

## Technical Specifications

		products for additional specifications.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>AC voltage</b>	100-127/200-240 VAC
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
<b>Notes</b>		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

<b>HP 5412 zl Switch with Premium Software</b> (J9643A)	<b>I/O ports and slots</b>	12 open module slots Supports a maximum of 96 10-GbE ports or 288 autosensing 10/100/1000 ports or 288 mini-GBICs, or a combination
	<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required (ordered separately)
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)
	<b>Weight</b>	34.94 lb (15.85 kg)
<b>Memory and processor</b>	<b>Gigabit Module</b>	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
	<b>10G module</b>	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
	<b>Management Module</b>	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash Mb, 128 MB compact flash, 256 MB DDR SDRAM

## Technical Specifications

<b>Mounting and enclosure</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b>	<b>1000 Mb Latency</b>	< 3.7 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 2.1 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 564.2 Mpps
	<b>Routing/Switching capacity</b>	758.4 Gbps
	<b>Switch fabric speed</b>	758.4 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO 9296
	<b>Electrical characteristics</b>	<b>Frequency</b>
<b>Description</b>		Chassis ships without power supplies. Four power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
<b>Maximum heat dissipation</b>		4900 BTU/hr (5169 kJ/hr), (max. non-PoE); 7400 BTU/hr (7,807 kJ/hr) (max. using PoE)
<b>AC voltage</b>		100-127/200-240 VAC
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2

## Technical Specifications

	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
<b>Notes</b>		Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.
<b>HP 5406-44G-PoE+-2XG v2 zl Switch with Premium Software (J9533A)</b>	<b>Included accessories</b>	1 HP 20-port Gig-T PoE+ / 2-port 10GbE SFP+ v2 zl Module (J9536A) 1 HP 1500W PoE+ zl Power Supply (J9306A) 1 HP 24-port Gig-T PoE+ v2 zl Module (J9534A)
	<b>Ports</b>	44 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only  2 open 10-GbE SFP+ transceiver slots 4 open module slots  Supports a maximum of 16 10-GbE ports or 140 autosensing 10/100/1000 ports or 100 mini-GBICs, or a combination
	<b>Power supplies</b>	2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)
	<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height) <b>Weight</b> 46.08 lb (20.9 kg)
	<b>Memory and processor</b>	<b>Gigabit Module</b> ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM <b>10G module</b> ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM <b>Management Module</b> Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	<b>Mounting and enclosure</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
	<b>Performance</b>	<b>1000 Mb Latency</b> < 3.7 $\mu$ s (FIFO 64-byte packets) <b>10 Gbps Latency</b> < 2.1 $\mu$ s (FIFO 64-byte packets) <b>Throughput</b> up to 282.1 Mpps <b>Routing/Switching capacity</b> 379.2 Gbps <b>Switch fabric speed</b> 379.2 Gbps <b>Routing table size</b> 10000 entries (IPv4), 5000 entries (IPv6) <b>MAC address table size</b> 64000 entries

## Technical Specifications

<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Description</b>	One J9306A installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>AC voltage</b>	100-127/200-240 VAC
	<b>Idle power</b>	215 W
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
<b>Notes</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

## Technical Specifications

<b>HP 5412-92G-PoE+-2XG v2 zl Switch with Premium Software</b> (J9532A)	<b>Included accessories</b>	3 HP 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 HP 20-port Gig-T PoE+ / 2-port 10GbE SFP+ v2 zl Module (J9536A) 2 HP 1500W PoE+ zl Power Supply (J9306A)
	<b>I/O ports and slots</b>	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only  2 open 10-GbE SFP+ transceiver slots 8 open module slots  Supports a maximum of 32 10-GbE ports or 284 autosensing 10/100/1000 ports or 196 mini-GBICs, or a combination
	<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required includes: 2 x J9306A (HP 1500W PoE+ zl Power Supply)
	<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height) <b>Weight</b> 75.36 lb (34.18 kg)
	<b>Memory and processor</b>	<b>Gigabit Module</b> ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM <b>10G module</b> ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM <b>Management Module</b> Freescale PowerPC 8540 @ 666 MHz, 4 MB flash Mb, 128 MB compact flash, 256 MB DDR SDRAM
	<b>Mounting and enclosure</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
	<b>Performance</b>	<b>1000 Mb Latency</b> < 3.7 μs (FIFO 64-byte packets) <b>10 Gbps Latency</b> < 2.1 μs (FIFO 64-byte packets) <b>Throughput</b> up to 564.2 Mpps <b>Routing/Switching capacity</b> 758.4 Gbps <b>Switch fabric speed</b> 758.4 Gbps <b>Routing table size</b> 10000 entries (IPv4), 5000 entries (IPv6) <b>MAC address table size</b> 64000 entries
	<b>Environment</b>	<b>Operating temperature</b> 32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed <b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C) <b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 149°F (65°C), noncondensing <b>Altitude</b> up to 10,000 ft (3 km) <b>Acoustic</b> Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO

## Technical Specifications

		9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Description</b>	Two J9306A installed. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.
	<b>Maximum heat dissipation</b>	4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)
	<b>AC voltage</b>	110-127/200-240 VAC
	<b>Idle power</b>	312 W
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
<b>Notes</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

### HP 5406-44G-PoE+-4G- SFP v2 zl Switch with Premium Software (J9539A)

#### Ports

1 HP 24-port Gig-T PoE+ v2 zl Module (J9534A)  
 1 HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module (J9535A)  
 1 HP 1500W PoE+ zl Power Supply (J9306A)

44 RJ-45 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 open mini-GBIC slots  
 4 open module slots

Supports a maximum of 16 10-GbE ports or 140 autosensing 10/100/1000



## Technical Specifications

		ports or 100 mini-GBICs, or a combination
<b>Power supplies</b>		2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)
<b>Physical characteristics</b>	<b>Dimensions</b>	17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height)
	<b>Weight</b>	45.58 lb (20.68 kg)
<b>Memory and processor</b>	<b>Gigabit Module</b>	ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM
	<b>10G module</b>	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
	<b>Management Module</b>	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
<b>Mounting and enclosure</b>		Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only
<b>Performance</b>	<b>1000 Mb Latency</b>	< 3.7 $\mu$ s (FIFO 64-byte packets)
	<b>10 Gbps Latency</b>	< 2.1 $\mu$ s (FIFO 64-byte packets)
	<b>Throughput</b>	up to 282.1 Mpps
	<b>Routing/Switching capacity</b>	379.2 Gbps
	<b>Switch fabric speed</b>	379.2 Gbps
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)
	<b>MAC address table size</b>	64000 entries
<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Description</b>	One J9306A installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>AC voltage</b>	110-127/200-240 VAC
	<b>Idle power</b>	215 W

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<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<p><b>EN</b> EN 55024, CISPR 24</p> <p><b>ESD</b> IEC 61000-4-2; 4 kV CD, 8 kV AD</p> <p><b>Radiated</b> IEC 61000-4-3; 3 V/m</p> <p><b>EFT/Burst</b> IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)</p> <p><b>Surge</b> IEC 61000-4-5; 1 kV/2 kV AC</p> <p><b>Conducted</b> IEC 61000-4-6; 3 V</p> <p><b>Power frequency magnetic field</b> IEC 61000-4-8; 1 A/m, 50 or 60 Hz</p> <p><b>Voltage dips and interruptions</b> IEC 61000-4-11; &gt;95% reduction, 0.5 period; 30% reduction, 25 periods</p> <p><b>Harmonics</b> EN 61000-3-2, IEC 61000-3-2</p> <p><b>Flicker</b> EN 61000-3-3, IEC 61000-3-3</p>
<b>Management</b>	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
<b>Notes</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

<b>HP 5412-92G-PoE+-4G v2 zl Switch with Premium Software</b> (J9540A)	<b>Included accessories</b>	HP 24-port Gig-T PoE+ v2 zl Module (J9534A) 1 HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module (J9535A) 2 HP 1500W PoE+ zl Power Supply (J9306A)
	<b>Ports</b>	92 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only  4 open mini-GBIC slots 8 open module slots  Supports a maximum of 32 10-GbE ports or 284 autosensing 10/100/1000 ports or 196 mini-GBICs, or a combination
	<b>Power supplies</b>	4 power supply slots 2 minimum power supplies required includes: 2 x J9306A (HP 1500W PoE+ zl Power Supply)
	<b>Physical characteristics</b>	<p><b>Dimensions</b> 17.5(w) x 17.75(d) x 12.1(h) in (44.45 x 45.09 x 30.73 cm) (7U height)</p> <p><b>Weight</b> 74.86 lb (33.96 kg)</p>
	<b>Memory and processor</b>	<p><b>Gigabit Module</b> ARM9 @ 200 MHz; packet buffer size: 144 Mb QDR SDRAM</p> <p><b>10G module</b> ARM9 @ 200 MHz; packet buffer size: 36 Mb</p>

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		QDR SDRAM	
	<b>Management Module</b>	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash Mb, 128 MB compact flash, 256 MB DDR SDRAM	
<b>Mounting and enclosure</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only		
<b>Performance</b>	<b>1000 Mb Latency</b>	< 3.7 $\mu$ s (FIFO 64-byte packets)	
	<b>10 Gbps Latency</b>	< 2.1 $\mu$ s (FIFO 64-byte packets)	
	<b>Throughput</b>	up to 564.2 Mpps	
	<b>Routing/Switching capacity</b>	758.4 Gbps	
	<b>Switch fabric speed</b>	758.4 Gbps	
	<b>Routing table size</b>	10000 entries (IPv4), 5000 entries (IPv6)	
	<b>MAC address table size</b>	64000 entries	
<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed	
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing	
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)	
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing	
	<b>Altitude</b>	up to 10,000 ft (3 km)	
	<b>Acoustic</b>	Power: 64 dB, Pressure: 57.5 dB ISO 7779, ISO 9296	
	<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
<b>Description</b>		Two J9306A installed. Two open power supply slots are available; three different power supplies are available. See power supply products for additional specifications.	
<b>Maximum heat dissipation</b>		4900 BTU/hr (5169.5 kJ/hr), (max. non-PoE); 7400 BTU/hr (7807 kJ/hr) (max. using PoE)	
<b>AC voltage</b>		110-127/200-240 VAC	
<b>Idle power</b>		312 W	
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24	
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD	
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m	
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC	
	<b>Conducted</b>	IEC 61000-4-6; 3 V	

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	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
<b>Notes</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP 5406 8p 10GBASE-T 8p 10GbE SFP+ v2 zl Switch with Premium Software (J9866A)</b>	<b>Included accessories</b>	1 HP 8-port 10GbE SFP+ v2 zl Module (J9538A) 1 HP 1500W PoE+ zl Power Supply (J9306A) 1 HP 8-port 10GBASE-T v2 zl Module (J9546A)
	<b>Ports</b>	8 RJ-45 10GbE ports (IEEE 802.3an-2006 Type 10GBASE-T) 8 open 10GbE SFP+ transceiver slots 4 open module slots Supports a maximum of 32 10GbE ports or 96 autosensing 10/100/1000 ports or 96 mini-GBICs, or a combination
	<b>Power supplies</b>	2 power supply slots 1 minimum power supply required includes: 1 x J9306A (HP 1500W PoE+ zl Power Supply)
	<b>Physical characteristics</b>	<b>Dimensions</b> 17.5(w) x 17.75(d) x 6.9(h) in (44.45 x 45.09 x 17.53 cm) (4U height) <b>Weight</b> 46.08 lb (20.9 kg)
	<b>Memory and processor</b>	<b>10G module</b> ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM <b>Management Module</b> Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
	<b>Mounting and enclosure</b>	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included); horizontal surface mounting only
	<b>Performance</b>	<b>1000 Mb Latency</b> < 3.7 $\mu$ s (FIFO 64-byte packets) <b>10 Gbps Latency</b> < 2.1 $\mu$ s (FIFO 64-byte packets) <b>Throughput</b> up to 282.1 Mpps <b>Routing/Switching capacity</b> 379.2 Gbps <b>Switch fabric speed</b> 379.2 Gbps <b>Routing table size</b> 10000 entries (IPv4), 5000 entries (IPv6) <b>MAC address table size</b> 64000 entries

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<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 0°C to 40°C with J8706A or J8707A modules installed
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
	<b>Acoustic</b>	Power: 57 dB, Pressure: 40.2 dB ISO 7779, ISO 9296
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Description</b>	One J9306A product is installed. One open power supply slot is available; three different power supplies are available. See power supply products for additional specifications.
	<b>Maximum heat dissipation</b>	2450 BTU/hr (2584.75 kJ/hr), (max. non-PoE); 3700 BTU/hr (3903 kJ/hr) (max. using PoE)
	<b>AC voltage</b>	110-127/200-240 VAC
	<b>Idle power</b>	215 W
<b>Safety</b>	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
<b>Emissions</b>	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>	HPE PCM+; HPE PCM (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
<b>Notes</b>	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later; for example, J9142B, J8177C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

## Technical Specifications

### Standards and protocols BGP

RFC 1997 BGP Communities Attribute  
 RFC 2918 Route Refresh Capability  
 RFC 4271 A Border Gateway Protocol 4 (BGP-4)  
 RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)  
 RFC 5492 Capabilities Advertisement with BGP-4

### Device Management

RFC 1591 DNS (client)  
 HTML and telnet management

### General Protocols

IEEE 802.1ad Q-in-Q  
 IEEE 802.1AX-2008 Link Aggregation  
 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 802.3af Power over Ethernet  
 IEEE 802.3x Flow Control  
 RFC 768 UDP  
 RFC 783 TFTP Protocol (revision 2)  
 RFC 792 ICMP  
 RFC 793 TCP  
 RFC 826 ARP  
 RFC 854 TELNET  
 RFC 868 Time Protocol  
 RFC 951 BOOTP  
 RFC 1058 RIPv1  
 RFC 1350 TFTP Protocol (revision 2)  
 RFC 1519 CIDR  
 RFC 1542 BOOTP Extensions  
 RFC 1918 Address Allocation for Private Internet  
 RFC 2030 Simple Network Time Protocol (SNTP) v4  
 RFC 2131 DHCP  
 RFC 2453 RIPv2  
 RFC 2548 (MS-RAS-Vendor only)  
 RFC 3046 DHCP Relay Agent Information Option  
 RFC 3576 Ext to RADIUS (CoA only)  
 RFC 3768 VRRP  
 RFC 4675 RADIUS VLAN & Priority  
 UDLD (Uni-directional Link Detection)  
 RFC 3376 IGMPv3 (host joins only)  
 RFC 3973 PIM Dense Mode  
 RFC 4601 PIM Sparse Mode

### IP Multicast

## Technical Specifications

### IPv6

RFC 1981 IPv6 Path MTU Discovery  
RFC 2375 IPv6 Multicast Address Assignments  
RFC 2460 IPv6 Specification  
RFC 2464 Transmission of IPv6 over Ethernet Networks  
RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)  
RFC 3019 MLDv1 MIB  
RFC 3315 DHCPv6 (client and relay)  
RFC 3484 Default Address Selection for IPv6  
RFC 3587 IPv6 Global Unicast Address Format  
RFC 3596 DNS Extension for IPv6  
RFC 3810 MLDv2 for IPv6  
RFC 4022 MIB for TCP  
RFC 4087 IP Tunnel MIB  
RFC 4113 MIB for UDP  
RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers  
RFC 4251 SSHv6 Architecture  
RFC 4252 SSHv6 Authentication  
RFC 4253 SSHv6 Transport Layer  
RFC 4254 SSHv6 Connection  
RFC 4291 IP Version 6 Addressing Architecture  
RFC 4293 MIB for IP  
RFC 4294 IPv6 Node Requirements  
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 5095 Deprecation of Type 0 Routing Headers in IPv6  
RFC 5340 OSPFv3 for IPv6  
RFC 5453 Reserved IPv6 Interface Identifiers  
RFC 5519 Multicast Group Membership Discovery  
MIB (MLDv2 only)  
RFC 5722 Handling of Overlapping IPv6 Fragments

### MIBs

IEEE 802.1ap (MSTP and STP MIB's only)  
RFC 1155 Structure & ID of Mgmt Info for TCP/IP Internets  
RFC 1213 MIB II  
RFC 1493 Bridge MIB

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	RFC 1724 RIPv2 MIB
	RFC 1850 OSPFv2 MIB
	RFC 2021 RMONv2 MIB
	RFC 2096 IP Forwarding Table MIB
	RFC 2578 Structure of Management Information Version 2 (SMIv2)
	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 2787 VRRP MIB
	RFC 2863 The Interfaces Group MIB
	RFC 2925 Ping MIB
	RFC 2932 IP (Multicast Routing MIB)
	RFC 2933 IGMP MIB
	RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)
<b>Network Management</b>	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
	RFC 5424 Syslog Protocol
	ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
	SNMPv1/v2c/v3
	XRMON
<b>OSPF</b>	RFC 2328 OSPFv2
	RFC 3101 OSPF NSSA
	RFC 5340 OSPFv3 for IPv6
<b>QoS/CoS</b>	RFC 2474 DiffServ Precedence, including 8 queues/port
	RFC 2597 DiffServ Assured Forwarding (AF)
	RFC 2598 DiffServ Expedited Forwarding (EF)
<b>Security</b>	IEEE 802.1X Port Based Network Access Control
	RFC 1492 TACACS+
	RFC 2865 RADIUS (client only)
	RFC 2866 RADIUS Accounting
	RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
	Secure Sockets Layer (SSL)
	SSHv2 Secure Shell



## Accessories

### HPE 5400 zl Switch Series accessories

#### Modules

HP 8-port 10GBASE-T v2 zl Module	J9546A
HP 4-port 10GbE CX4 zl Module	J8708A
HP 4-port 10GbE X2 zl Module	J8707A
HP 4-port 10GbE SFP+ zl Module	J9309A
HP 8-port 10GbE SFP+ v2 zl Module	J9538A
HP 20p GT PoE+ / 2p SFP+ v2 zl Module	J9536A
HP 20-port GT PoE+/4-port SFP v2 zl Mod	J9535A
<b>HP 24-port SFP v2 zl Module</b>	J9537A
HP 12-port Gig-T PoE+ / 12-port SFP v2 zl Module	J9637A
HP 24-port 10/100/1000 PoE zl Module	J8702A
HP 20-port 10/100/1000 PoE+ / 4-port Mini-GBIC zl Module	J9308A
HP 20-port Gig-T / 4-port Mini-GBIC zl Module	J8705A
HP 24-port Mini-GBIC zl Module	J8706A
HP 24-port 10/100/1000 PoE+ zl Module	J9307A
<b>HP 24-port Gig-T PoE+ v2 zl Module</b>	J9534A
HP 24-port 10/100 PoE+ zl Module	J9478A
<b>HP 24-port 10/100 PoE+ v2 zl Module</b>	J9547A
<b>HP 24-port Gig-T v2 zl Module</b>	J9550A
HP 20-port Gig-T / 4-port SFP v2 zl Mod	J9549A
HP 20-port Gig-T / 2-port SFP+ v2 zl Mod	J9548A
HP Extended Services zl Module with Riverbed Steelhead RiOS Application	J9517A
HP Advanced Services v2 zl Module with HDD	J9857A
HP Advanced Services v2 zl Module with SSD	J9858A

#### Transceivers

<b>HP X131 10G X2 SC ER Transceiver</b>	J8438A
<b>HP X131 10G X2 SC SR Transceiver</b>	J8436A
<b>HP X131 10G X2 CX4 Transceiver</b>	J8440C
<b>HP X111 100M SFP LC FX Transceiver</b>	J9054C
<b>HP X131 10G X2 SC LR Transceiver</b>	J8437A
<b>HP X131 10G X2 SC LRM Transceiver</b>	J9144A
<b>HP X112 100M SFP LC BX-D Transceiver</b>	J9099B
<b>HP X112 100M SFP LC BX-U Transceiver</b>	J9100B
<b>HP X132 10G SFP+ LC SR Transceiver</b>	J9150A
<b>HP X132 10G SFP+ LC LR Transceiver</b>	J9151A
<b>HP X132 10G SFP+ LC LRM Transceiver</b>	J9152A
<b>HP X121 1G SFP LC LH Transceiver</b>	J4860C
<b>HP X121 1G SFP LC SX Transceiver</b>	J4858C

## Accessories

<b><u>HP X121 1G SFP LC LX Transceiver</u></b>	J4859C
<b><u>HP X121 1G SFP RJ45 T Transceiver</u></b>	J8177C
<b><u>HP X122 1G SFP LC BX-D Transceiver</u></b>	J9142B
<b><u>HP X122 1G SFP LC BX-U Transceiver</u></b>	J9143B
<b><u>HP X132 10G SFP+ LC ER Transceiver</u></b>	J9153A
<b>Cables</b>	
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 X244 10G XFP to SFP+ 1m Direct Attach Copper Cable	J9300A
HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
HP 10G X244 XFP to SFP+ 5m Direct Attach Copper Cable	J9302A
HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable</u></b>	QK732A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable</u></b>	QK733A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable</u></b>	QK734A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable</u></b>	QK735A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable</u></b>	QK736A
<b><u>HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable</u></b>	QK737A
<b>Power Supply</b>	
HP 1500W PoE+ zl Power Supply	J9306A
HP 1500W zl Power Supply	J8713A
HP 875W zl Power Supply	J8712A
<b>EPS/RPS</b>	
<b><u>HP zl Power Supply Shelf</u></b>	J8714A
<b>License</b>	
HP MSM Additional 40 Access Point License	J9371A
HP 5400 zl Premium License	J8994A
<b>WLAN</b>	
HP MSM775 zl Premium Controller Module	J9840A

## Accessory Product Details

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

<b>HP 8-port 10GBase-T v2 Ports zl Module (J9546A)</b>	<b>Physical characteristics</b>	<b>Dimensions</b>	8 RJ-45 10-GbE ports; Duplex: full only 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.1 lb. (0.95 kg)
		<b>Full configuration weight</b>	2.1 lb. (0.95 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
	<b>Notes</b>	<b>Fiber type</b>	Single Mode
			Max Distance upto 100m with qualified 10Gbase-T Cat7(Shielded), Cat6a (Shielded/Unshielded) and Cat6 (Shielded, tested to 350Mhz TIA/EIA TSB-155A) cables. Max Distance upto 55m with Cat6 (unshielded, tested to 350Mhz TIA/EIA TSB-155A)
	<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

<b>HP 4-Port 10 GbE CX4 zl Ports Module (J8708A)</b>	<b>Physical characteristics</b>	<b>Dimensions</b>	4 CX4 10-GbE ports (IEEE 802.3ak Type 10GBASE-CX4); Duplex: full only 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	1.74 lb. (0.79 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
	<b>Cabling</b>		Maximum distance: <ul style="list-style-type: none"> <li>• 15 m using CX4 cable</li> <li>• 300 m using optical media converters and multimode fiber cable</li> </ul>
	<b>Notes</b>		Use CX4 10-GbE cable (0.5 m-15 m) or HPE ProCurve 10-GbE CX4 Media Converter (J8439A). No CX4 cables are included with this module.
	<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

## Accessory Product Details

<b>HP 4-Port 10 GbE X2 zl Module</b> (J8707A)	<b>Ports</b>	4 open 10-GbE X2 transceiver slots	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	1.74 lb. (0.79 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 104°F (0°C to 40°C)
	<b>Notes</b>	When installed in a zl chassis, the J8707A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		
<b>HP 4-Port 10 GbE SFP+ zl Module</b> (J9309A)	<b>Ports</b>	4 open 10-GbE SFP+ transceiver slots	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	1.64 lb. (0.74 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 113°F (45°C), noncondensing
<b>Nonoperating/Storage temperature</b>		-40°F to 158°F (-40°C to 70°C)	
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing	
<b>Notes</b>	When installed in a zl chassis, the J9309A module limits the operating temperature range of the chassis to 32F to 113F (0C to 45C).		
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		
<b>HP 8-port 10 GbE SFP+ v2 zl Module</b> (J9538A)	<b>Ports</b>	8 open 10-GbE SFP+ transceiver slots	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.09 lb (0.95 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
<b>Nonoperating/Storage temperature</b>		-40°F to 158°F (-40°C to 70°C)	
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing	
<b>Notes</b>	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)		

## Accessory Product Details

	<b>Services</b>	<p>are required.</p> <p>When mini-GBICs are inserted in any mini-GBIC slot of a J9538A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).</p> <p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<b>HP 20-port Gig-T PoE+/2-port 10-GbE SFP+ v2 zl Module (J9536A)</b>	<b>Ports</b>	<p>2 open 10-GbE SFP+ transceiver slots</p> <p>20 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p>
	<b>Physical characteristics</b>	<p><b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)</p> <p><b>Weight</b> 2.1 lb. (0.95 kg)</p>
	<b>Environment</b>	<p><b>Operating temperature</b> 32°F to 131°F (0°C to 55°C)</p> <p><b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing</p> <p><b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)</p> <p><b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 158°F (70°C), noncondensing</p>
	<b>Cabling</b>	<p>Cable type:</p> <p>1000BASE-T: Category 5 (5E or better recommended), 100 <math>\Omega</math> differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;</p>
	<b>Notes</b>	<p>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.</p> <p>When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).</p>
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<b>HP 20-port Gig-T PoE+/4-port SFP v2 zl Module (J9535A)</b>	<b>Ports</b>	<p>4 open mini-GBIC (SFP) slots</p> <p>20 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p>
	<b>Physical characteristics</b>	<p><b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)</p> <p><b>Weight</b> 2.1 lb. (0.95 kg)</p>

## Accessory Product Details

<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
<b>Cabling</b>	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 $\Omega$ differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
<b>Notes</b>	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

<b>HP 24-port SFP v2 zl Module (J9537A)</b>	<b>Ports</b>	24 open mini-GBIC (SFP) slots	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.01 lb. (0.91 kg)
	<b>Notes</b>	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. When installed in a zl chassis, the J8706A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		

<b>HP 12-port Gig-T PoE+/12-port SFP v2 zl Module (J9637A)</b>	<b>Ports</b>	12 open mini-GBIC (SFP) slots 12 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.1 lb. (0.95 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing	

## Accessory Product Details

		<p><b>humidity</b></p> <p><b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)</p> <p><b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 158°F (70°C), noncondensing</p>
<b>Cabling</b>		<p>Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T</p>
<b>Notes</b>		<p>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.</p> <p>When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).</p>
<b>Services</b>		<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<b>HP 24-port 10/100/1000 PoE zl Module (J8702A)</b>	<b>Ports</b>	24 RJ-45 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
	<b>Physical characteristics</b>	<p><b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)</p> <p><b>Weight</b> 2.16 lb. (0.98 kg)</p>
	<b>Cabling</b>	<p>Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T</p>
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<b>HP 20-Port 10/100/1000 PoE+/4-Port Mini-GBIC zl Module (J9308A)</b>	<b>Ports</b>	4 open mini-GBIC (SFP) slots 20 RJ-45 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
	<b>Physical characteristics</b>	<p><b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)</p> <p><b>Weight</b> 2.1 lb. (0.95 kg)</p>
	<b>Environment</b>	<p><b>Operating temperature</b> 32°F to 131°F (0°C to 55°C)</p> <p><b>Operating relative</b> 15% to 95% @ 131°F (55°C), noncondensing</p>

## Accessory Product Details

		<b>humidity</b>	
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
<b>Cabling</b>		Cable type:	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 $\Omega$ differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;
<b>Notes</b>		When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP 20-port Gig-T / 4-port Mini-GBIC zl Module (J8705A)</b>	<b>Ports</b>		4 open mini-GBIC (SFP) slots 20 RJ-45 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
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.2 lb. (1 kg)
	<b>Notes</b>	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	When mini-GBICs are inserted in any mini-GBIC slot of a J8705A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).
	<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP 24-port Mini-GBIC zl Module (J8706A)</b>	<b>Ports</b>		24 open mini-GBIC (SFP) slots
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.01 lb. (0.91 kg)
	<b>Notes</b>	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.	When installed in a zl chassis, the J8706A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).



## Accessory Product Details

	<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP 24-Port 10/100/1000 PoE+ zl Module (J9307A)</b>	<b>Ports</b>	24 RJ-45 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	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.0 lb. (0.98 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>		15% to 95% @ 149°F (-40°C), noncondensing
<b>Cabling</b>		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 $\Omega$ differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		
<b>HP 24-port Gig-T PoE+ v2 zl Module (J9534A)</b>	<b>Ports</b>	24 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	<b>Physical characteristics</b>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b>	2.0 lb. (0.98 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>		15% to 95% @ 149°F (-40°C), noncondensing
<b>Cabling</b>		Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 $\Omega$ differential 4-	

## Accessory Product Details

### Services

pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;

Refer to the Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP 24-Port 10/100 PoE+ Ports zl Module (J9478A)

#### Physical characteristics

24 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full

**Dimensions** 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)

**Weight** 2.0 lb. (0.98 kg)

#### Environment

**Operating temperature** 32°F to 131°F (0°C to 55°C)

**Operating relative humidity** 15% to 95% @ 131°F (55°C), noncondensing

**Nonoperating/Storage temperature** -40°F to 158°F (-40°C to 70°C)

**Nonoperating/Storage relative humidity** 15% to 95% @ 158°F (70°C), noncondensing

#### Cabling

Cable type:

100BASE-TX: Category 5 (or better), 100  $\Omega$  unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100BASE-TX;

#### Services

Refer to the Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP 24-port 10/100 PoE+ Ports v2 zl Module (J9547A)

#### Physical characteristics

24 RJ-45 autosensing 10/100 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3at PoE+); Media Type: Auto-MDIX; Duplex: half or full

**Dimensions** 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)

**Weight** 2.0 lb. (0.98 kg)

#### Environment

**Operating temperature** 32°F to 131°F (0°C to 55°C)

**Operating relative humidity** 15% to 95% @ 131°F (55°C), noncondensing

**Nonoperating/Storage temperature** -40°F to 158°F (-40°C to 70°C)

**Nonoperating/Storage relative humidity** 15% to 95% @ 158°F (70°C), noncondensing

#### Cabling

Cable type:

100BASE-TX: Category 5 (or better), 100  $\Omega$  differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100BASE-TX;

## Accessory Product Details

<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.
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<b>HP 24-port Gig-T v2 zl Module (J9550A)</b>	<b>Ports</b>	24 RJ-45 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
	<b>Physical characteristics</b>	<b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b> 2.0 lb. (0.98 kg)
	<b>Environment</b>	<b>Operating temperature</b> 32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 149°F (-40°C), noncondensing
	<b>Cabling</b>	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 $\Omega$ differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;
	<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

<b>HP 20-port Gig-T/4-port SFP v2 zl Module (J9549A)</b>	<b>Ports</b>	4 open mini-GBIC (SFP) slots 20 RJ-45 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
	<b>Physical characteristics</b>	<b>Dimensions</b> 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
		<b>Weight</b> 2.1 lb. (0.95 kg)
	<b>Environment</b>	<b>Operating temperature</b> 32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 158°F (70°C), noncondensing
	<b>Cabling</b>	Cable type:

## Accessory Product Details

<b>Notes</b>	<p>1000BASE-T: Category 5 (5E or better recommended), 100 <math>\Omega</math> differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;</p> <p>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.</p> <p>When mini-GBICs are inserted in any mini-GBIC slot of a J9549A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).</p>
<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>

<b>HP 20-port Gig-T/2-port 10-GbE SFP+ v2 zl Module (J9548A)</b>	<b>Ports</b>	<p>2 open 10-GbE SFP+ transceiver slots</p> <p>20 RJ-45 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</p>								
	<b>Physical characteristics</b>	<table> <tr> <td><b>Dimensions</b></td> <td>10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)</td> </tr> <tr> <td><b>Weight</b></td> <td>2.1 lb. (0.95 kg)</td> </tr> </table>	<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)	<b>Weight</b>	2.1 lb. (0.95 kg)				
<b>Dimensions</b>	10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)									
<b>Weight</b>	2.1 lb. (0.95 kg)									
	<b>Environment</b>	<table> <tr> <td><b>Operating temperature</b></td> <td>32°F to 131°F (0°C to 55°C)</td> </tr> <tr> <td><b>Operating relative humidity</b></td> <td>15% to 95% @ 131°F (55°C), noncondensing</td> </tr> <tr> <td><b>Nonoperating/Storage temperature</b></td> <td>-40°F to 158°F (-40°C to 70°C)</td> </tr> <tr> <td><b>Nonoperating/Storage relative humidity</b></td> <td>15% to 95% @ 158°F (70°C), noncondensing</td> </tr> </table>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)	<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)									
<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing									
<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)									
<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing									
	<b>Cabling</b>	<p>Cable type:</p> <p>1000BASE-T: Category 5 (5E or better recommended), 100 <math>\Omega</math> differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;</p>								
	<b>Notes</b>	<p>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.</p> <p>When mini-GBICs are inserted in any mini-GBIC slot of a J9308A, this limits the operating temperature range of the chassis to 32F to 104F (0C to 40C).</p>								
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>								

<b>HP Extended Services zl Module with Riverbed Steelhead</b>	<b>Physical characteristics</b>	<table> <tr> <td><b>Dimensions</b></td> <td>9.75(d) x 8.13(w) x 3.5(h) in. (24.77 x 20.65 x 8.89 cm)</td> </tr> <tr> <td><b>Weight</b></td> <td>4.5 lb. (2.04 kg)</td> </tr> </table>	<b>Dimensions</b>	9.75(d) x 8.13(w) x 3.5(h) in. (24.77 x 20.65 x 8.89 cm)	<b>Weight</b>	4.5 lb. (2.04 kg)
	<b>Dimensions</b>	9.75(d) x 8.13(w) x 3.5(h) in. (24.77 x 20.65 x 8.89 cm)				
<b>Weight</b>	4.5 lb. (2.04 kg)					

## Accessory Product Details

<b>RiOS™ Application</b> (J9517A)	<b>Environment</b>	<b>Operating temperature</b>	32°F to 122°F (0°C to 50°C); <b>Important:</b> See <b>NOTE</b> for 50°C temperature spec rules
		<b>Operating relative humidity</b>	15% to 90% @ 122°F (50°C), non-condensing
		<b>Non-operating/Storage temperature</b>	14°F to 149°F (-10°C to 65°C)
		<b>Non-operating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), non-condensing
		<b>Altitude</b>	up to 10,000 ft. (3 km)
	<b>Notes</b>	<p>5400 series switches operating temperature specifications apply to when the services module is installed; 40°C when any services module is installed in the right side of the chassis, and 50°C when all services modules are installed in the left side.</p> <p>Up to four services modules can be installed in a 5412zl/8212zl chassis simultaneously.</p> <p>When the services module is installed, the maximum relative humidity for the switch drops from 95% to 90%.</p> <p>This product does not support Riverbed Services Platform (RSP) functionality.</p>	
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>	

### HP Advanced Services v2 zl Module with HDD (J9857A)

<b>Physical characteristics</b>	<b>Dimensions</b>	8.13(w) x 9.75(d) x 1.75(h) in (20.65 x 24.77 x 4.45 cm) (1U height)
	<b>Weight</b>	3.00 lb (1.36 kg)
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
	<b>Operating relative humidity</b>	15% to 95% @ 104°F (40°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 90% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 9,842 ft (3 km)
<b>Electrical characteristics</b>	<b>Maximum heat dissipation</b>	133/287 BTU/hr (140.32/302.78 kJ/hr)
	<b>Idle power</b>	84 W
	<b>Maximum power rating</b>	39 W
<b>Management</b>	command-line interface	
<b>Notes</b>	<p>The services module can be used with VMware certified applications.</p> <ul style="list-style-type: none"> <li>• The HDD has a maximum operational wet bulb temperature of 28°C</li> <li>• The HDD has a maximum non-operational wet bulb temperature of 28°C</li> <li>• Up to four services modules can be installed in a 5406 zl chassis. There are no restrictions on where</li> </ul>	

## Accessory Product Details

the modules can go in the chassis

- Up to three services modules can be installed in an 8206 zl chassis. There are no restrictions on where the modules can go in the chassis
- Up to six services modules can be installed in a 5412 or 8212 zl chassis. There are no restrictions on where the modules can go in the chassis

### Services

Refer to the Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP Advanced Services v2 zl Module with SSD (J9858A)

<b>Physical characteristics</b>	<b>Dimensions</b>	8.13(w) x 9.75(d) x 1.75(h) in (20.65 x 24.77 x 4.45 cm) (1U height)
	<b>Weight</b>	2.75 lb (1.36 kg)
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
	<b>Operating relative humidity</b>	15% to 95% @ 104°F (40°C), noncondensing
	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Nonoperating/Storage relative humidity</b>	15% to 90% @ 149°F (65°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft (3 km)
<b>Electrical characteristics</b>	<b>Maximum heat dissipation</b>	133/290 BTU/hr (140.32/280.63 kJ/hr)
	<b>Idle power</b>	85 W
	<b>Maximum power rating</b>	37 W
<b>Management</b>	command-line interface	
<b>Notes</b>	<p>The services module can be used with VMware certified applications.</p> <ul style="list-style-type: none"> <li>• The SSD has a maximum operational wet bulb temperature of 28°C</li> <li>• The SSD has a maximum non-operational wet bulb temperature of 28°C</li> <li>• Up to four services modules can be installed in a 5406 zl chassis. There are no restrictions on where the modules can go in the chassis</li> <li>• Up to three services modules can be installed in an 8206 zl chassis. There are no restrictions on where the modules can go in the chassis</li> <li>• Up to six services modules can be installed in a 5412 or 8212 zl chassis. There are no restrictions on where the modules can go in the chassis</li> </ul>	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

<b>HP X131 10G X2 SC ER Transceiver (J8438A)</b>	<b>Ports</b>	1 SC 10-GbE port (IEEE 802.3ae Type 10GBASE-ER); Duplex: full only	
	<b>Connectivity</b>	<b>Connector type</b>	SC
		<b>Wavelength</b>	1550 nm
HP X131 10G X2 SC ER Transceiver: An X2 format 10-gigabit transceiver with SC connectors using ER technology.	<b>Physical characteristics</b>	<b>Dimensions</b>	3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
		<b>Weight</b>	0.35 lb. (0.16 kg)
	<b>Transceiver form factor</b>	X2	

## Accessory Product Details

<b>Environment</b>	<b>Operating temperature</b>	32°F to 104°F (0°C to 40°C)
	<b>Operating relative humidity</b>	15% to 95%, noncondensing
<b>Electrical characteristics</b>	<b>Power consumption typical</b>	3 W
	<b>Power consumption maximum</b>	4.5 W
<b>Cabling</b>	Cable type: Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1;	
	<b>Cable length</b>	2m to 30km (max 40km on engineered links)
	<b>Fiber type</b>	Single Mode
<b>Notes</b>	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.	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

<b>HP X131 10G X2 SC SR Transceiver (J8436A)</b>  HP X131 10G X2 SC SR Transceiver: An X2 format 10-gigabit transceiver with SC connectors using SR technology.	<b>Ports</b>	1 SC 10-GbE port (IEEE 802.3ae Type 10GBASE-SR); Duplex: full only		
	<b>Connectivity</b>	<b>Connector type</b>	SC	
		<b>Wavelength</b>	850 nm	
	<b>Physical characteristics</b>	<b>Dimensions</b>	3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)	
		<b>Weight</b>	0.35 lb. (0.16 kg)	
		<b>Transceiver form factor</b>	X2	
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 158°F (0°C to 70°C)	
		<b>Operating relative humidity</b>	0% to 95%, noncondensing	
		<b>Nonoperating/Storage temperature</b>	-40°F to 185°F (-40°C to 85°C)	
		<b>Nonoperating/Storage relative humidity</b>	0% to 95%, noncondensing	
	<b>Electrical characteristics</b>	<b>Altitude</b>	up to 10,000 ft. (3 km)	
		<b>Power consumption typical</b>	1.7 W	
		<b>Power consumption maximum</b>	2.4 W	
<b>Cabling</b>	Cable type: 62.5/125 μm or 50/125 μm (core/cladding) graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively;			

## Accessory Product Details

Maximum distance:

- 2-26m with 62.5  $\mu$ m multimode cable @ 160 MHz\*km
- 2-33m with 62.5  $\mu$ m multimode cable @ 200 MHz\*km
- 2-66m with 50  $\mu$ m multimode cable @ 400 MHz\*km
- 2-82m with 50  $\mu$ m multimode cable @ 500 MHz\*km
- 2-300m with 50  $\mu$ m 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

**HP X131 10G X2 CX4 Transceiver (J8440C)**

HP X131 10G X2 CX4 Transceiver: An X2 format 10-gigabit CX4 transceiver.

**Ports**

1 CX4 10-GbE port (IEEE 802.3ak Type 10GBASE-CX4); Duplex: full only

**Connectivity**

**Connector type** CX4

**Physical characteristics**

**Dimensions** 3.54(d) x 1.42(w) x 0.53(h) in. (8.99 x 3.61 x 1.35 cm)

**Weight** 0.18 lb. (0.08 kg)

**Environment**

**Operating temperature** 32°F to 131°F (0°C to 55°C)

**Operating relative humidity** 15% to 95% @ 149°F (65°C), non-condensing

**Cabling**

Maximum distance:

- 15 m using CX4 cables
- 300 m using optical media converters and multimode fiber cable

**Notes**

Use CX4 10-GbE cable (0.5-15 m)  
Includes a single 0.5 m cable.

**Services**

Refer to the Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

**HP X111 100M SFP LC FX Transceiver (J9054C)**

HP X111 100M SFP LC FX Transceiver: An SFP format 100-megabit transceiver with LC connectors using FX

**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)



## Accessory Product Details

technology.	<b>Cabling</b>	<p>Type:</p> <ul style="list-style-type: none"> <li>62.5/125 <math>\mu\text{m}</math> or 50/125 <math>\mu\text{m}</math> (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;</li> </ul> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>2 km (full duplex) or 412 m (half duplex)</li> </ul>
	<b>Notes</b>	<p>Transmitter wavelength: 1310nm Power consumption is 1.1 watt maximum.</p> <p>For supported platforms and minimum software requirements to support this product, see the document titled "Support for the J9054C 100-FX SFP-LC Transceiver" on the "HPE Mini-GBICs and SFPs" Manuals Web page.</p>
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>

<b>HP X131 10G X2 SC LR Transceiver</b> (J8437A)	<b>Ports</b>	1 SC 10-GbE port (IEEE 802.3ae Type 10GBASE-LR); Duplex: full only
An X2 form-factor transceiver that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on single-mode fiber.	<b>Connectivity</b>	<b>Connector type</b> SC
	<b>Physical characteristics</b>	<b>Wavelength</b> 1310 nm
		<b>Dimensions</b> 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
		<b>Weight</b> 0.35 lb. (0.16 kg)
	<b>Environment</b>	<b>Transceiver form factor</b> X2
		<b>Operating temperature</b> 32°F to 104°F (0°C to 40°C)
		<b>Operating relative humidity</b> 15% to 95%, noncondensing
		<b>Nonoperating/Storage temperature</b> -40°F to 185°F (-40°C to 85°C)
	<b>Electrical characteristics</b>	<b>Altitude</b> up to 10,000 ft. (3 km)
		<b>Power consumption typical</b> 2 W
<b>Power consumption maximum</b> 3 W		
<b>Cabling</b>	<p>Cable type:</p> <p>Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1;</p> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>10 km</li> </ul>	

## Accessory Product Details

		<b>Cable length</b>	2m to 10km with 9/125 $\mu\text{m}$ single-mode cable
		<b>Fiber type</b>	Single Mode
<b>Notes</b>		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	
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP X131 10G X2 SC LRM Transceiver (J9144A)</b>		<b>Ports</b>	1 SC 10-GbE port (IEEE 802.3aq Type 10GBASE-LRM); Duplex: full only
	<b>Physical characteristics</b>	<b>Dimensions</b>	3.54(d) x 1.59(w) x 0.7(h) in. (9.0 x 4.05 x 1.78 cm)
		<b>Weight</b>	0.35 lb. (0.16 kg)
		<b>Transceiver form factor</b>	X2
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 158°F (0°C to 70°C)
		<b>Operating relative humidity</b>	0% to 95%, noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 185°F (-40°C to 85°C)
		<b>Altitude</b>	up to 10,000 ft. (3 km)
	<b>Electrical characteristics</b>	<b>Power consumption typical</b>	3.2 W
		<b>Power consumption maximum</b>	4.2 W
	<b>Cabling</b>	Cable type: 62.5/125 $\mu\text{m}$ or 50/125 $\mu\text{m}$ (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:	
		<ul style="list-style-type: none"> <li>• 0.5-220m with 62.5 <math>\mu\text{m}</math> multimode cable @ 160/500 MHz*km</li> <li>• 0.5-220m with 62.5 <math>\mu\text{m}</math> multimode cable @ 200/500 MHz*km</li> <li>• 0.5-100m with 50 <math>\mu\text{m}</math> multimode cable @ 400/400 MHz*km</li> <li>• 0.5-220m with 50 <math>\mu\text{m}</math> multimode cable @ 500/500 MHz*km</li> <li>• 0.5-220m with 50 <math>\mu\text{m}</math> multimode cable @ 1500/500 MHz*km</li> </ul>	
		<b>Cable length</b>	.5m to 220m
		<b>Fiber type</b>	Multi Mode
<b>Notes</b>		Wavelength: 1310nm For OM3 cable (50 $\mu\text{m}$ 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 supported platforms and minimum software requirements to support	

## Accessory Product Details

		<p>this product, see the document titled "Support for the J9144A 10-GbE X2-SC LRM Optic" on the "HP 10-GbE Transceivers" Manuals Web page.</p> <p>Power Consumption: 4W Max</p>
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<p><b>HP X112 100M SFP LC BX-D Transceiver</b> (J9099B)</p> <p>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.</p>	<p><b>Ports</b></p> <p><b>Physical characteristics</b></p> <p><b>Environment</b></p> <p><b>Cabling</b></p> <p><b>Notes</b></p> <p><b>Services</b></p>	<p>1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-D); Duplex: full only</p> <p><b>Dimensions</b> 2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)</p> <p><b>Weight</b> 0.04 lb. (0.03 kg)</p> <p><b>Operating temperature</b> 32°F to 158°F (0°C to 70°C)</p> <p><b>Operating relative humidity</b> 0% to 95%, noncondensing</p> <p><b>Nonoperating/Storage temperature</b> -40°F to 185°F (-40°C to 85°C)</p> <p>Type:</p> <p>Single-mode fiber optic, complying with ITU-T G.652;</p> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>0.5-10,000 m (single-mode fiber)</li> </ul> <p>Transmit wavelength: 1550 nm. Receive wavelength: 1310 nm. Power consumption is 1.1 watt maximum.</p> <p>For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE Mini-GBICs and SFPs" Manuals Web page.</p> <p>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.)</p> <p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<p><b>HP X112 100M SFP LC BX-U Transceiver</b> (J9100B)</p> <p>A small form-factor</p>	<p><b>Ports</b></p> <p><b>Physical characteristics</b></p> <p><b>Weight</b></p>	<p>1 LC 100BASE-BX10 port (IEEE 802.3ah Type 100BASE-BX10-U); Duplex: full only</p> <p><b>Dimensions</b> 2.7(d) x 0.55(w) x 0.48(h) in. (6.86 x 1.39 x 1.22 cm)</p> <p><b>Weight</b> 0.07 lb. (.03 kg)</p>

## Accessory Product Details

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.	<b>Environment</b>	<b>Operating temperature</b>	32°F to 158°F (0°C to 70°C)
		<b>Operating relative humidity</b>	0% to 95%, noncondensing
	<b>Cabling</b>	<b>Nonoperating/Storage temperature</b>	-40°F to 185°F (-40°C to 85°C)
		Type:	Single-mode fiber optic, complying with ITU-T G.652;
		Maximum distance:	<ul style="list-style-type: none"> <li>0.5-10,000 m (single-mode fiber)</li> </ul>
	<b>Notes</b>	For supported platforms and minimum software requirements to support this product, see the document titled "Support for the HPE BX Transceivers" on the "HPE 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.	
	<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

### HP X132 10G SFP+ LC SR Ports

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.	<b>Connectivity</b>	1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR); Duplex: full only	
	<b>Physical characteristics</b>	<b>Connector type</b>	LC
		<b>Wavelength</b>	850 nm
		<b>Dimensions</b>	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		<b>Weight</b>	0.04 lb. (0.02 kg)
		<b>Transceiver form factor</b>	SFP+
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 158°F (0°C to 70°C)
		<b>Operating relative humidity</b>	0% to 85%, noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 185°F (-40°C to 85°C)
		<b>Altitude</b>	up to 10,000 ft. (3 km)
	<b>Electrical characteristics</b>	<b>Power consumption typical</b>	0.6 W
		<b>Power consumption maximum</b>	0.8 W
	<b>Cabling</b>	Cable type:	

## Accessory Product Details

62.5/125  $\mu\text{m}$  or 50/125  $\mu\text{m}$  (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  $\mu\text{m}$  multimode cable @ 160 MHz\*km
- 2-33m with 62.5  $\mu\text{m}$  multimode cable @ 200 MHz\*km
- 2-66m with 50  $\mu\text{m}$  multimode cable @ 400 MHz\*km
- 2-82m with 50  $\mu\text{m}$  multimode cable @ 500 MHz\*km
- 2-300m with 50  $\mu\text{m}$  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 Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

## HP X132 10G SFP+ LC LR Ports

### 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.

### Connectivity

1 LC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR); Duplex: full only

**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  $\mu\text{m}$  single-mode cable

## Accessory Product Details

		<b>Cable length</b>	2m to 10km
		<b>Fiber type</b>	Single Mode
<b>Notes</b>		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.	
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
<b>HP X132 10G SFP+ LC LRM Transceiver (J9152A)</b>	<b>Ports</b>	1 LC 10-GbE port (IEEE 802.3aq Type 10Gbase-LRM); Duplex: full only	
	<b>Connectivity</b>	<b>Connector type</b>	LC
		<b>Wavelength</b>	1310 nm
	<b>Physical characteristics</b>	<b>Dimensions</b>	2.19(d) x 0.54(w) x 0.47(h) in. (5.57 x 1.38 x 1.19 cm)
		<b>Weight</b>	0.04 lb. (.02 kg)
		<b>Transceiver form factor</b>	SFP+
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 158°F (0°C to 70°C)
		<b>Operating relative humidity</b>	0% to 85%, noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 185°F (-40°C to 85°C)
		<b>Altitude</b>	up to 10,000 ft. (3 km)
	<b>Electrical characteristics</b>	<b>Power consumption typical</b>	0.7 W
		<b>Power consumption maximum</b>	1 W
	<b>Cabling</b>	Cable type: 62.5/125 $\mu\text{m}$ or 50/125 $\mu\text{m}$ (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:	
		<ul style="list-style-type: none"> <li>• 0.5-220m with 62.5 <math>\mu\text{m}</math> multimode cable @ 160/500 MHz*km</li> <li>• 0.5-220m with 62.5 <math>\mu\text{m}</math> multimode cable @ 200/500 MHz*km</li> <li>• 0.5-100m with 50 <math>\mu\text{m}</math> multimode cable @ 400/400 MHz*km</li> <li>• 0.5-220m with 50 <math>\mu\text{m}</math> multimode cable @ 500/500 MHz*km</li> <li>• 0.5-220m with 50 <math>\mu\text{m}</math> multimode cable @ 1500/500 MHz*km</li> </ul>	
		<b>Cable length</b>	0.5m to 220m
		<b>Fiber type</b>	Multi Mode
<b>Notes</b>		For OM3 cable (50 $\mu\text{m}$ multimode @ 1500/500 MHz*km), a mode-	

## Accessory Product Details

		<p>conditioning patch cord is not required. Other multimode cables may require mode-conditioning patch cords to achieve the maximum distances listed above.</p> <p>For fiber patch cords, use Ultra Physical Contact (UPC) surface termination/polish. Angled Physical Contact (APC) is not recommended.</p> <p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
	<b>Services</b>	
<p><b>HP X121 1G SFP LC LH Transceiver</b> (J4860C)</p> <p>A small form-factor pluggable (SFP) Gigabit LH transceiver that provides a full-duplex Gigabit solution up to 70 km on single-mode fiber.</p>	<p><b>Ports</b></p> <p><b>Physical characteristics</b></p> <p><b>Environment</b></p> <p><b>Cabling</b></p>	<p>1 LC 1000BASE-LH port (no IEEE standard exists for 1550 nm optics); Duplex: full only</p> <p>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)</p> <p>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)</p> <p>Cable type:</p> <ul style="list-style-type: none"> <li>Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1;</li> </ul> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>10-70,000 m (single-mode fiber)</li> </ul>
	<b>Notes</b>	<p>Power consumption is 0.8 watts typical with 1 watt maximum at 100% utilization.</p> <p>For distances less than 20 km, a 10 dB attenuator must be used.</p> <p>For distances between 20 km and 40 km, a 5 dB attenuator must be used. Attenuators can be purchased from most cable vendors.</p>
	<b>Services</b>	<p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
<p><b>HP X121 1G SFP LC SX Transceiver</b> (J4858C)</p> <p>A small form-factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550 m on multimode fiber.</p>	<p><b>Ports</b></p> <p><b>Physical characteristics</b></p> <p><b>Environment</b></p> <p><b>Electrical characteristics</b></p>	<p>1 LC 1000BASE-SX port; Duplex: full only</p> <p>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</p> <p>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)</p> <p>Power consumption typical: 0.4 W Power consumption maximum: 0.7 W</p>

## Accessory Product Details

### Cabling

Type:

- 62.5/125  $\mu\text{m}$  or 50/125  $\mu\text{m}$  (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  $\mu\text{m}$  core diameter, 160 MHz\*km bandwidth)
- 2-275 m (62.5  $\mu\text{m}$  core diameter, 200 MHz\*km bandwidth)
- 2-500 m (50  $\mu\text{m}$  core diameter, 400 MHz\*km bandwidth)
- 2-550 m (50  $\mu\text{m}$  core diameter, 500 MHz\*km bandwidth)

Cable length: 2-550m

Fiber type: Multi Mode

### Services

Refer to the Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP X121 1G SFP LC LX Transceiver (J4859C)

#### 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)

HP X121 1G SFP LC LX Transceiver: An SFP format

#### 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)

gigabit transceiver with LC connectors using LX technology.

#### Cabling

Type:

- Either single mode or multimode; 62.5/125  $\mu\text{m}$  or 50/125  $\mu\text{m}$  (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  $\mu\text{m}$  core diameter, 500 MHz\*km bandwidth)
- 2-550 m (multimode 50  $\mu\text{m}$  core diameter, 400 MHz\*km bandwidth)
- 2-550 m (multimode 50  $\mu\text{m}$  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.



## Accessory Product Details

		<p>Wavelength: 1310nm</p> <p>Power Consumption: &lt; 500mW Typical</p> <p>Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.</p>
	<b>Services</b>	
<b>HP X121 1G SFP RJ45 T Transceiver (J8177C)</b>	<b>Ports</b>	1 RJ-45 1000BASE-T port (IEEE 802.3ab Type 1000BASE-T); Duplex: full only
	<b>Physical characteristics</b>	Dimensions: 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm) Weight: 0.06 lb. (0.03 kg)
HP X121 1G SFP RJ45 T Transceiver: An SFP format gigabit transceiver with RJ45 connectors using 1000BaseT technology.	<b>Environment</b>	Operating temperature: 32°F to 158°F (0°C to 70°C); with 100 LFM airflow over the SFP module Operating relative humidity: 0% to 95% @ 75°F (25°C), noncondensing Nonoperating/Storage temperature: -40°F to 185°F (-40°C to 85°C) Nonoperating/Storage relative humidity: 0% to 95% @ 77°F (25°C), noncondensing Altitude: up to 10,000 ft. (3000 km)
	<b>Cabling</b>	Cable type: 1000BASE-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000BASE-T;  Maximum distance: <ul style="list-style-type: none"> <li>• 100 m</li> </ul>
	<b>Notes</b>	Power consumption is nominally 1 watt. For supported platforms and minimum software requirements to support this product, see the document titled "Support for the J8177C 1000Base-T Mini-GBIC" on the "HPE Mini-GBICs and SFPs" Manuals Web page. The J8177C Gigabit copper mini-GBIC is not supported on dual-personality ports. The J8177C is capable of 100 Mb operation. This is supported on only the HPE 8200zl, 5400zl, and HPE 6200-24G-mGBIC zl Switches using software version K.12.21 or later. Use the "auto-100" port setting to enable 100 Mb operation. Important: The earlier J8177B does not support 100 Mb operation. When used in the Switch gl 20-Port 10/100/1000 Module (J4908A), the J8177C mini-GBIC can be installed in either the upper or lower mini-GBIC port, but will block access to the other port.
	<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

### HP X122 1G SFP LC BX-D Ports

1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-D);

## Accessory Product Details

### 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.

	Duplex: full only
<b>Physical characteristics</b>	<b>Dimensions</b> 2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
<b>Environment</b>	<b>Weight</b> 0.04 lb. (0.02 kg)
	<b>Operating temperature</b> 32°F to 158°F (0°C to 70°C)
	<b>Operating relative humidity</b> 0% to 95%, non-condensing
<b>Cabling</b>	<b>Non-operating/Storage temperature</b> -40°F to 185°F -40°C to 85°C
	Type: Single-mode fiber optic, complying with ITU-T G.652;
	Maximum distance:
	<ul style="list-style-type: none"> <li>0.5-10,000 m (single-mode fiber)</li> </ul>
<b>Notes</b>	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 HPE BX Transceivers" on the "HPE 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.)
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

### HP X122 1G SFP LC BX-U Ports

#### 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

	1 LC 1000BASE-BX10 port (IEEE 802.3ah Type 1000BASE-BX10-U); Duplex: full only
<b>Physical characteristics</b>	<b>Dimensions</b> 2.19(d) x 0.54(w) x 0.46(h) in. (5.57 x 1.37 x 1.18 cm)
<b>Environment</b>	<b>Weight</b> 0.04 lb. (0.02 kg)
	<b>Operating temperature</b> 32°F to 158°F (0°C to 70°C)
	<b>Operating relative humidity</b> 0% to 95%, non-condensing
<b>Cabling</b>	<b>Non-operating/Storage temperature</b> -40°F to 185°F -40°C to 85°C
	Type: Single-mode fiber optic, complying with ITU-T G.652;
	Maximum distance:

## Accessory Product Details

("downstream") device.

- 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 HPE BX Transceivers" on the "HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP X132 10G SFP+ LC ER Ports

Transceiver (J9153A)

#### Connectivity

1 LC 10-GbE port (IEEE 802.3ae Type 10GBASE-ER); Duplex: full only

**Connector type** LC

**Wavelength** 1550 nm

#### Physical characteristics

**Dimensions** 2.22(d) x 0.55(w) x 0.47(h) in. (5.65 x 1.39 x 1.19 cm)

**Weight** .04 lb., Fully loaded

**Transceiver form factor** SFP+

#### Environment

**Operating temperature** 32°F to 158°F (0°C to 70°C)

**Operating relative humidity** 5% to 95%, noncondensing

**Nonoperating/Storage temperature** -40°F to 185°F (-40°C to 85°C)

**Nonoperating/Storage relative humidity** 5% to 95%, noncondensing

**Altitude** up to 10,000 ft. (3 km)

#### Electrical characteristics

**Power consumption typical** 1.3 W

**Power consumption maximum** 1.5 W

#### Cabling

Cable type:  
Single-mode fiber optic, complying with ITU-T G.652;

Maximum distance:

- 40km

**Fiber type** Single Mode

### Notes

Check switch release notes for minimum version of software required to support this transceiver.

## Accessory Product Details

Some switches have limits as to how many of this particular transceiver can be installed. See the release notes of the switch software/firmware being used for more details.

### Services

Refer to the Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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<b>HP X242 SFP+ SFP+ 1 m Direct Attach Cable (J9281B)</b>	<b>Connectivity</b>	Length	3.28 ft. (1 m)
	<b>Physical characteristics</b>	Weight	0.24 lb. (0.11 kg) the cable with an SFP+ transceiver at each end of the cable
		<b>Environment</b>	Operating temperature
	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
	<b>Electrical characteristics</b>	Altitude	up to 10,000 ft. (3 km)
		Notes	0.04 watts maximum per transceiver end
	<b>Notes</b>	Electrical Properties	<ul style="list-style-type: none"> <li>• Cable Characteristic Impedance: 100 ohms</li> <li>• Crosstalk between pairs: 2% max</li> <li>• Time delay: 1.31 nsec/ft</li> </ul>
		Physical Properties	<ul style="list-style-type: none"> <li>• Cable Diameter: 0.180"</li> <li>• Minimum Cable Bend Radius: 1.0"</li> </ul>
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		

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<b>HP X242 SFP+ SFP+ 3 m Direct Attach Cable (J9283B)</b>	<b>Connectivity</b>	Length	10 ft. (3 m)
	<b>Physical characteristics</b>	Weight	.49 lb. (0.22 kg), Fully loaded the cable with an SFP+ transceiver at each end of the cable
		<b>Environment</b>	Operating temperature
	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
	<b>Electrical characteristics</b>	Altitude	up to 10,000 ft. (3 km)
		Notes	0.04 watts maximum per transceiver end

## Accessory Product Details

<b>Notes</b>	Electrical Properties	
	<ul style="list-style-type: none"> <li>• Cable Characteristic Impedance: 100 ohms</li> <li>• Crosstalk between pairs: 2% max</li> <li>• Time delay: 1.31 nsec/ft</li> </ul>	
	Physical Properties	
	<ul style="list-style-type: none"> <li>• Cable Diameter: 0.180"</li> <li>• Minimum Cable Bend Radius: 1.0"</li> </ul>	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	

<b>HP X242 SFP+ SFP+ 7 m Connectivity Direct Attach Cable</b> (J9285B)	<b>Physical characteristics</b>	Length	22.97 ft. (7 m)
		Weight	1.02 lb., Fully loaded the cable with an SFP+ transceiver at each end of the cable
	<b>Environment</b>	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)
	<b>Electrical characteristics</b>	Notes	0.04 watts maximum per transceiver end
	<b>Notes</b>	Electrical Properties	
		<ul style="list-style-type: none"> <li>• Cable Characteristic Impedance: 100 ohms</li> <li>• Crosstalk between pairs: 2% max</li> <li>• Time delay: 1.31 nsec/ft</li> </ul>	
	Physical Properties		
	<ul style="list-style-type: none"> <li>• Cable Diameter: 0.180"</li> <li>• Minimum Cable Bend Radius: 1.0"</li> </ul>		
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		

<b>HP X244 XFP SFP+ 1 m Direct Attach Cable</b> (J9300A)	<b>Connectivity</b>	Length	3.28 ft. (1 m)
	<b>Physical characteristics</b>	Weight	.27 lb. (0.12 kg), Fully loaded cable with XFP transceiver on one end and SFP+ on the other end
	<b>Environment</b>	Operating temperature	32°F to 158°F (0°C to 70°C)
A 1m direct attach copper cable with an XFP connector attached on		Operating relative humidity	5% to 95%, noncondensing

## Accessory Product Details

one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/storage to interconnect XFP and SFP+ form factors.

**Notes**
**Services**

Nonoperating/Storage temperature 32°F to 158°F (0°C to 70°C)

Nonoperating/Storage relative humidity 5% to 95%, noncondensing

Altitude up to 10,000 ft. (3 km)

XFP end consumes 2 watts SFP+ end consumes 0.036 watts

Refer to the Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP X244 XFP SFP+ 3 m Direct Attach Cable (J9301A)

A 3m direct attach copper cable with an XFP connector attached on one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/storage to interconnect XFP and SFP+ form factors.

**Connectivity**
**Physical characteristics**
**Environment**
**Cabling**
**Notes**
**Services**

Length 9.84 ft. (3 m)

Weight .51 lb. (0.23 kg), Fully loaded cable with XFP transceiver on one end and SFP+ on the other end

Operating temperature 32°F to 158°F (0°C to 70°C)

Operating relative humidity 5% to 95%, noncondensing

Nonoperating/Storage temperature 32°F to 158°F (0°C to 70°C)

Nonoperating/Storage relative humidity 5% to 95%, noncondensing

Altitude up to 10,000 ft. (3 km)

Maximum distance:  
• 3m Direct Attach Cable

XFP end consumes 2 watts SFP+ end consumes 0.036 watts

Refer to the Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP X244 XFP SFP+ 5 m Direct Attach Cable (J9302A)

A 5m direct attach copper cable with an XFP connector attached on one end and an SFP+ connector attached on the other end. This cable provides a low price connectivity option between switches/servers/storage to interconnect

**Connectivity**
**Physical characteristics**
**Environment**
**Notes**

Length 16.4 ft. (5 m)

Weight .74 lb. (0.34 kg), Fully loaded cable with XFP transceiver on one end and SFP+ on the other end

Operating temperature 32°F to 158°F (0°C to 70°C)

Operating relative humidity 5% to 95%, noncondensing

Nonoperating/Storage temperature 32°F to 158°F (0°C to 70°C)

Nonoperating/Storage relative humidity 5% to 95%, noncondensing

Altitude up to 10,000 ft. (3 km)

XFP end consumes 2 watts SFP+ end consumes 0.036 watts

## Accessory Product Details

XFP and SFP+ form factors.

### Services

Refer to the Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

**HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)**

### Cabling

#### Cable type:

50/125  $\mu\text{m}$  (core/cladding) diameter, multimode 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  $\mu\text{m}$  fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter:  $50 \pm 3.0\mu\text{m}$  Cladding diameter:  $125 \pm 2.0\mu\text{m}$  Coating diameter:  $245 \pm 10\mu\text{m}$
- 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 50/125 $\mu\text{m}$  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.
- 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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

### Cabling

#### Cable type:

50/125  $\mu\text{m}$  (core/cladding) diameter, multimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m

#### Maximum distance:

## Accessory Product Details

### Notes

10Gbps Transfer Rate (Ethernet): 300m

Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125  $\mu\text{m}$  fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter:  $50 \pm 3.0\mu\text{m}$  Cladding diameter:  $125 \pm 2.0\mu\text{m}$  Coating diameter:  $245 \pm 10\mu\text{m}$
- 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 Hewlett Packard Enterprise website at

<http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP 2 m Multimode OM3 Cabling LC/LC Optical Cable

(AJ835A)

#### Cable type:

50/125  $\mu\text{m}$  (core/cladding) diameter, multimode 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  $\mu\text{m}$  fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter:  $50 \pm 3.0\mu\text{m}$  Cladding diameter:  $125 \pm 2.0\mu\text{m}$  Coating diameter:  $245 \pm 10\mu\text{m}$
- 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.



## Accessory Product Details

- 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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

#### Cable type:

50/125  $\mu\text{m}$  core/cladding) diameter, multimode 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  $\pm$  3.0um Cladding diameter: 125  $\pm$  2.0um Coating diameter: 245  $\pm$  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 @

## Accessory Product Details

- 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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

#### Cable type:

50/125  $\mu\text{m}$  (core/cladding) diameter, multimode 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  $\mu\text{m}$  fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter:  $50 \pm 3.0\mu\text{m}$  Cladding diameter:  $125 \pm 2.0\mu\text{m}$  Coating diameter:  $245 \pm 10\mu\text{m}$
- 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 50/125 $\mu\text{m}$  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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP 30 m Multimode OM3 LC/LC Optical Cabling

#### Cable type:

50/125  $\mu\text{m}$  (core/cladding) diameter, multimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for

## Accessory Product Details

### Cable (AJ838A)

distances of up to 300 m;

#### Notes

#### Maximum distance:

10Gbps Transfer Rate (Ethernet): 300m

Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125  $\mu$ m fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter: 50  $\pm$  3.0 $\mu$ m Cladding diameter: 125  $\pm$  2.0 $\mu$ m Coating diameter: 245  $\pm$  10 $\mu$ m
- 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 50/125 $\mu$ m 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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

#### Cabling

#### Cable type:

50/125  $\mu$ m (core/cladding) diameter, multimode fiber optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m;

#### Notes

#### Maximum distance:

10Gbps Transfer Rate (Ethernet): 300m

Cable Specs: Tight buffered duplex fiber optic multimode OM3 50/125  $\mu$ m fiber optic cable and Ethernet assembly with LC duplex connectors on one end and LC duplex connectors on other end.

- Dimensions: Core diameter: 50  $\pm$  3.0 $\mu$ m Cladding diameter: 125  $\pm$  2.0 $\mu$ m Coating diameter: 245  $\pm$  10 $\mu$ m
- Optical Glass Bandwidth: For LED sources: 1500/500 MHz-km @850/1300nm.

## Accessory Product Details

- 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise 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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP Premier Flex LC/LC Notes

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors

## Accessory Product Details

### Multi-mode OM4 2 fiber 2m Cable (QK733A)

on each end.

- Core diameter: 50um  $\pm$ 3um, Cladding diameter: 125um  $\pm$ 2um; Coating diameter: 245  $\pm$  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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP Premier Flex LC/LC Notes Multi-mode OM4 2 fiber 5m Cable (QK734A)

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  $\pm$ 3um, Cladding diameter: 125um  $\pm$ 2um; Coating diameter: 245  $\pm$  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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### HP Premier Flex LC/LC Notes Multi-mode OM4 2 fiber 15m Cable (QK735A)

Cable Specs: Graded-index, "bendable" fiber optic multimode OM3+ 50/125um duplex cable and Ethernet assembly with LC duplex connectors on each end.

## Accessory Product Details

- Core diameter: 50um  $\pm$ 3um, Cladding diameter: 125um  $\pm$ 2um; Coating diameter: 245  $\pm$  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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise 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  $\pm$ 3um, Cladding diameter: 125um  $\pm$ 2um; Coating diameter: 245  $\pm$  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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

### 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  $\pm$ 3um, Cladding diameter: 125um  $\pm$ 2um; Coating diameter: 245  $\pm$  10um

## Accessory Product Details

- 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: HPE 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 Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

<b>HP 1500 W PoE+ zl Power Supply</b> (J9306A)	<b>Physical characteristics</b>	<b>Dimensions</b>	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
	<b>Environment</b>	<b>Weight</b>	7.5 lb. (3.2 kg)
		<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
	<b>Electrical characteristics</b>	<b>Altitude</b>	up to 10,000 ft. (3 km)
		<b>AC voltage</b>	110-127/200-240 VAC
		<b>Current</b>	13/10 A
		<b>Maximum power rating</b>	1768 W
<b>Frequency</b>		50/60 Hz	
<b>Notes</b>	<b>Notes</b>	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. The Maximum Power Rating at 120 volts is 1114 watts and at 240 volts is 1768 watts.	
	<b>Notes</b>	Each J9306A supplies 600 W chassis power, 300 W of PoE/PoE+ power at 110-127 volts, and 900 W of PoE/PoE+ power at 200-240 volts. One J9306A can power the J8697A chassis. One J9306A can power the J9477A chassis. Two J9306A supplies are required to power the J8698A chassis. Two J9306A supplies are required to power the J8715A chassis.	

## Accessory Product Details

<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.
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<b>HP 1500 W zl Power Supply</b> (J8713A)	<b>Physical characteristics</b>	<b>Dimensions</b>	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
		<b>Weight</b>	7.5 lb. (3.2 kg)
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C)
		<b>Operating relative humidity</b>	15% to 95% @ 131°F (55°C), noncondensing
		<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
		<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 158°F (70°C), noncondensing
	<b>Electrical characteristics</b>	<b>Altitude</b>	up to 10,000 ft. (3 km)
		<b>AC voltage</b>	200-240 VAC
		<b>Current</b>	10 A
		<b>Maximum power rating</b>	1800 W
<b>Frequency</b>		50/60 Hz	
	<b>Notes</b>	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.	
<b>Notes</b>	<p>200–240 V only. Installation of the J8713A reduces the chassis altitude specification to 10,000 ft. (3677m).</p> <ul style="list-style-type: none"> <li>J8713A supplies 600 W chassis power and 900 W PoE power. See the Ordering Guide for more details on power supply selection for PoE power.</li> </ul> <p>Units shipped to North America include a NEMA L6-20P twist lock power cord. Non-locking NEMA 6-20P optionally available - see the Ordering Guide for more details.</p> <p>When used in the J8714A power shelf, the following specs apply (at full load):</p> <ul style="list-style-type: none"> <li>Heat dissipation: 450 BTU/hr (475 kJ/hr) @ 220V</li> <li>Maximum current: 5.1 A @ 220 V</li> </ul>		
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.		

<b>HP 875 W zl Power</b>	<b>Physical characteristics</b>	<b>Dimensions</b>	6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
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## Accessory Product Details

### Supply (J8712A)

<b>Environment</b>	<b>Weight</b> 7.05 lb. (3.2 kg) <b>Operating temperature</b> 32°F to 131°F (0°C to 55°C) <b>Operating relative humidity</b> 15% to 95% @ 131°F (55°C), noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C) <b>Nonoperating/Storage relative humidity</b> 15% to 95% @ 158°F (70°C), noncondensing <b>Altitude</b> up to 10,000 ft. (3 km)
<b>Electrical characteristics</b>	<b>AC voltage</b> 100-127/200-240 VAC <b>Current</b> 12/5.7 A <b>Maximum power rating</b> 1050 W <b>Frequency</b> 50/60 Hz <b>Notes</b> 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.
<b>Notes</b>	<p>J8712A supplies 600 W chassis power and 273 W PoE power.          One J8712A can power the J8697A chassis.          Two J8712A supplies are required to power the J8698A chassis.          Two J8712A supplies are required to power the J8715A chassis.          See the Ordering Guide for more details on power supply selection for PoE power.          When used in the J8714A power shelf, the following specs apply (at full load):</p> <ul style="list-style-type: none"> <li>• Heat dissipation: 250 BTU/hr (263 kJ/hr) @ 110 V, 210 BTU/hr (222 kJ/hr) @ 220 V</li> <li>• Maximum current: 3.2 A @ 110 V, 1.7 A @ 220 V</li> </ul>
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

### HP zl Power Supply Shelf (J8714A)

<b>Ports</b>	2 external power supply ports Restrictions: PoE power available depends on power supplies installed.
<b>Physical characteristics</b>	<b>Dimensions</b> 9.73(d) x 17.44(w) x 5.2(h) in. (24.71 x 44.3 x 13.2 cm) (3U height) <b>Weight</b> 9.26 lb. (4.2 kg) (no power supplies installed)
<b>Environment</b>	<b>Operating temperature</b> 32°F to 131°F (0°C to 55°C) <b>Operating relative humidity</b> 15% to 95% @ 104°F (40°C), noncondensing <b>Nonoperating/Storage temperature</b> -40°F to 158°F (-40°C to 70°C)

## Accessory Product Details

	<b>Nonoperating/Storage relative humidity</b>	15% to 95% @ 104°F (40°C), noncondensing
	<b>Altitude</b>	up to 10,000 ft. (3 km)
	<b>Acoustic</b>	Power: 52.9 dB Pressure: 42.9 dB
<b>Electrical characteristics</b>	<b>Description</b>	Power draw and heat dissipation for the power shelf are dependent on the power supplies installed.
	<b>Notes</b>	For heat dissipation and power requirements of the power shelf, find and add together these figures for the 1 or 2 power supplies actually installed.
<b>Safety</b>		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
<b>Emissions</b>		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	<b>EN</b>	EN 55024, CISPR 24
	<b>ESD</b>	IEC 61000-4-2; 4 kV CD, 8 kV AD
	<b>Radiated</b>	IEC 61000-4-3; 3 V/m
	<b>EFT/Burst</b>	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	<b>Surge</b>	IEC 61000-4-5; 1 kV/2 kV AC
	<b>Conducted</b>	IEC 61000-4-6; 3 V
	<b>Power frequency magnetic field</b>	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; > 95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Notes</b>		The HPE ProCurve Switch zl Power Supply Shelf has two slots for zl power supplies. It supplies PoE power only to zl switches. For yl switches, see the HPE ProCurve 620 Redundant/External Power Supply. Power shelf depth includes 0.75 in. (1.9 cm) due to the power supply handles. Power supplies not included.
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.

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### HP 5400 zl Premium License (J8994A) Services

Refer to the Hewlett Packard Enterprise website at <http://www.hpe.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 Hewlett Packard Enterprise sales office.

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## Accessory Product Details

## Summary of Changes

Date	Version History	Action	Description of Change:
01-Dec-2015	From Version 39 to 40	Changed	Overview and Technical Specifications updated
20-Mar-2015	From Version 38 to 39	Changed	Configuration menu for 5400zl split in to 2 menus: 5400 zl, and 5400R zl2
01-Dec-2014	From Version 37 to 38	Changed	Feature updates, Changes made on the entire document.
09-Oct-2014	From Version 36 to 37	Removed	SKU J8439A removed
		Changed	Accessory Product Details revised
10-Jun-2014	From Version 35 to 36	Changed	Updated Configuration Information to add the zl2 Switch Series information.
17-Feb-2014	From Version 33 to 35	Changed	SFP+ Transceivers were revised.
17-Jan-2014	From Version 32 to 33	Changed	Corrected a part number in the Accessories section.
09-Dec-2013	From Version 31 to 32	Changed	Build to Order, Box Level Integrated CTO Models, Rack Level Integrated CTO Models, Internal Power Supplies, Modules, and Cables were revised.
19-Aug-2013	From Version 30 to 31	Added	HPE 5406 8p10GT 8p10GE Swch and Psw was added to Configuration
15-Jul-2013	From Version 29 to 30	Changed	Updated the BTO section of the new Configuration section.
12-Jul-2013	From Version 28 to 29	Added	Configuration was added.
10-Jun-2013	From Version 27 to 28	Added	OM4 cables were added.
24-Sep-2012	From Version 26 to 27	Changed	The Features and Benefits section, Introduction, and Accessories sections were updated. Minor changes were made to each model's technical specifications.
27-Aug-2012	From Version 25 to 26	Changed	Updated the specifications for the HPE 8-port 10 GbE SFP+ v2 zl Module in Accessory Product Details.
25-Jun-2012	From Version 24 to 25	Changed	The Features and Benefits section, Models section, Introduction, and Accessories sections were updated. Minor changes were made to each model's technical specifications.
30-Mar-2012	From Version 23 to 24	Changed	The Features and Benefits section and Model names were updated.
27-Mar-2012	From Version 22 to 23	Added	HPE X242 SFP+ to SFP+ 10m Direct Attach Copper Cable and HPE X242 SFP+ to SFP+ 15m Direct Attach Copper Cable were added.
29-Nov-2011	From Version 21 to 22	Changed	The Features and Benefits section was updated.
09-Nov-2011	From Version 20 to 21	Changed	The names of the product series and models were updated throughout the document.
30-Sep-2011	From Version 19 to 20	Added	Accessory Product Details was added.
20-Jun-2011	From Version 17 to 19	Changed	The QuickSpecs was completely revised, including removing models.
15-Apr-2011	From Version 16 to 17	Removed	Removed the remaining mentions of ProCurve in the QS.

## Summary of Changes

10-Dec-2010	From Version 15 to 16	Added	Added the two chassis models and also several new accessories.
15-Nov-2010	From Version 14 to 15	Changed	The QuickSpecs was completely revised, including adding several new models.
15-Sep-2010	From Version 13 to 14	Changed	The QuickSpecs was completely revised, including changing the title.
02-Jun-2010	From Version 12 to 13	Changed	Updated the Notes section of Technical Specifications.  Updated Standards and Protocols  Added new cables to the Accessories section.
19-Feb-2010	From Version 11 to 12	Removed	Removed an incompatible product from the Accessories section.
10-Feb-2010	From Version 10 to 11	Changed	The features, accessories, specifications: Notes have changed for this product.
02-Oct-2009	From Version 9 to 10	Added	Added 2 new service part numbers for the HPE ProCurve 5406zl-48G-PoE + Switch and HPE ProCurve 5412-96G-PoE + Switch
01-Sep-2009	From Version 8 to 9	Added	All mentions of the HPE ProCurve 5406zl-48G-PoE + Switch and HPE ProCurve 5412-96G-PoE + Switch
		Changed	Updates were made throughout the QuickSpecs.
28-Apr-2009	From Version 7 to 8	Added	Added several new products to the Accessories section.
17-Mar-2009	From Version 6 to 7	Changed	Changes were made throughout the entire QuickSpecs. Note the title has changed.
19-Jan-2009	From Version 5 to 6	Changed	Changes included updating the Standards and Protocols for all Switch specifications in the document, Features and Benefits within the Overview section and completely revising the Accessories section, adding IPv6 throughout the document and IEEE 802.1ad Q-in-Q to Layer 2 Switching and General Protocols
06-Feb-2008	From Version 4 to 5	Removed	Removed a reference to RFC 2784 from the document.
01-Dec-2007	From Version 3 to 4	Changed	This QuickSpecs was completely revised.
22-Feb-2007	From Version 2 to 3	Changed	Changes included updating the Standards and Protocols for all Switch specifications in the document, adding several new services, and adding several new modules to the Modules and RPS sections.
18-Aug-2006	From Version 1 to 2	Changed	Changes made throughout the QuickSpecs.

## Summary of Changes



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