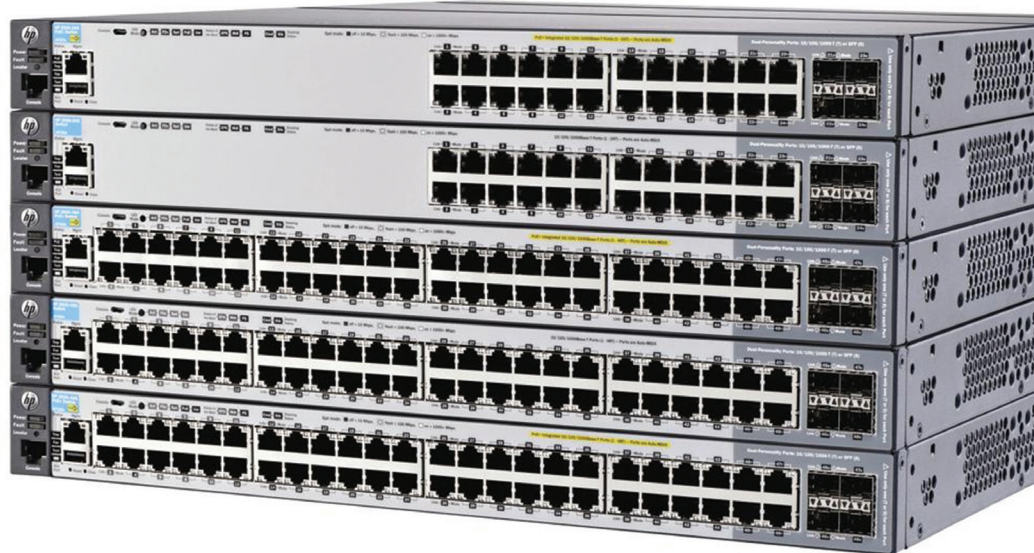


# HP 2920 Switch Series



## Product overview

The HP 2920 Switch Series consists of five switches: the 2920-24G and 2920-24G-PoE+ switches with 24 10/100/1000 ports and the 2920-48G, 2920-48G-PoE+, and 2920-48G 740W PoE+ switches with 48 10/100/1000 ports. Each switch has four dual-personality ports for 10/100/1000 or SFP connectivity.

In addition, the 2920 Switch Series supports up to four optional 10 Gigabit Ethernet (SFP+ and/or 10GBASE-T) ports, as well as a two-port stacking module. These options provide you with flexible and easy-to-deploy uplinks and stacking.

Together with static and routing-information-protocol (RIP) routing, robust security and management, enterprise-class features, free Limited Lifetime Warranty 2.0, and free software updates, the 2920 Switch Series is a comprehensive, cost-effective, and scalable solution for building high-performance networks. These switches can be deployed at the enterprise edge, in remote branch offices, and in converged networks.

### A summary of the highlights of the 2920 Switch Series:

- High-performance Gigabit Ethernet access switch
- Four optional 10GbE (SFP+ and/or 10GBASE-T) ports
- Stacking capability with a total of four switches
- L2 and L3 plus static and RIP routing, PoE, and PoE+ support
- Limited Lifetime Warranty 2.0, sFlow®, ACLs, OpenFlow, and rate limiting

## Features and benefits

### Software-defined networking (SDN)

- OpenFlow

Is a key technology that enables SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths

### Unified Wired and Wireless

- **NEW** HTTP redirect function

Supports HP Intelligent Management Center (IMC) bring your own device (BYOD) solution

### Quality of service (QoS)

- Traffic prioritization (IEEE 802.1p)

Allows real-time traffic classification into eight priority levels that are mapped to eight queues

- L4 prioritization

Enables prioritization based on TCP/UDP port numbers

- Class of service (CoS)

Sets the IEEE 802.1p priority tag based on the IP address, IP type of service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

- Rate limiting

Establishes per-port ingress-enforced maximums and per-port per-queue minimums

- Large buffers

Provide graceful congestion management

### Connectivity

- Flexible 10 Gb/s Ethernet connectivity

Up to four optional 10 Gigabit ports (SFP+ and/or 10GBASE-T)

- Optional two-port stacking module with up to 40 Gb/s per port

Allows stacking of up to four switch units into a single virtual device

- Auto-MDIX

Provides automatic adjustments for straight-through or crossover cables on all 10/100 and 10/100/1000 ports

- IPv6

- IPv6 host

Allows the switches to be managed and deployed at the edge of IPv6 networks

- Dual stack (IPv4/IPv6)

Provides the transition mechanism from IPv4 to IPv6; and supports connectivity for both protocols

- MLD snooping

Forwards IPv6 multicast traffic to the appropriate interface; and helps prevent IPv6 multicast traffic from flooding the network

- Security

Provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown

- IEEE 802.3at PoE+

Provides up to 30 W per port, allowing support of the latest PoE+-capable devices such as IP phones, wireless access points, and security cameras as well as any IEEE 802.3af-compliant end device; and mitigates the cost of additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments

- Pre-standard PoE support

Detects and provides power to pre-standard PoE devices

- Dual-personality functionality

Includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit SX, LX, and LH or 100 FX

### **Performance**

- Energy-efficient design

- 80 PLUS Silver Certified power supply

- Increases power efficiency and savings

- Energy-efficient Ethernet (EEE) support

- Reduces power consumption in accordance with IEEE 802.3az

- HP ProVision ASIC architecture

Is designed with the latest ProVision ASIC, providing very low latency, increased packet buffering, and adaptive power consumption

- Selectable queue configurations

Increases performance by selecting the number of queues and associated memory buffering that best meet the requirements of the network applications

### **Convergence**

- IP multicast snooping (data-driven IGMP)

Mitigates flooding of IP multicast traffic automatically

- Media endpoint discovery (MED) enabled by the link-layer discovery protocol (LLDP)

Defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

- IEEE 802.1ab LLDP

Facilitates easy mapping, using network management applications with the LLDP automated device discovery protocol

- PoE and PoE+ allocations

Support multiple methods—automatic, IEEE 802.3at dynamic, LLDP-MED fine grain, IEEE 802.3af device class, or user specified—to allocate and manage PoE/PoE+ power for more efficient energy use

- Local MAC authentication

Assigns attributes such as VLAN and QoS, using a locally configured profile that can be a list of MAC prefixes

### **Resiliency and high availability**

- Multiple spanning tree protocol (STP) and IEEE 802.1s  
Offers high link availability in multiple VLAN environments by allowing multiple spanning trees; and provides legacy support for IEEE 802.1d and IEEE 802.1w
- IEEE 802.3ad link-aggregation-control protocol (LACP) and HP port trunking  
Support up to 60 static, dynamic, or distributed trunks active across a stack, with each trunk having up to eight links (ports) per static trunk; and offer support for trunking across stack members
- Ring and chain stacking topology  
Allows failure of a link or switch in a ring of stacked switches, while the remaining connected switches continue operation
- SmartLink  
Provides easy-to-configure link redundancy of active and standby links

### **Management**

- SNMPv1, v2, and v3  
Provide complete support of SNMP and an industry-standard management information base (MIB) as well as private extensions; SNMPv3 supports increased security using encryption
- Out-of-band Ethernet management port  
Enables management of a separate physical management network, keeping management traffic segmented from network data traffic

### **Manageability**

- Dual flash images  
Provides independent primary and secondary operating system files for backup while upgrading
- Friendly port names  
Allows assignment of descriptive names to ports
- Find, fix, and inform  
Finds and fixes common network problems automatically, and then informs the administrator
- Multiple configuration files  
Are easily stored with a flash image
- Software updates  
Are offered as free downloads from the Web
- Remote monitoring (RMON), extended RMON (XRMON), and sFlow  
Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- Troubleshooting  
Accelerates network problem solving with ingress and egress port monitoring
- Unidirectional link detection (UDLD)  
Monitors the link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices

### **L2 switching**

- VLAN support and tagging
  - Supports IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously
- GARP VLAN registration protocol
  - Enables automatic learning and dynamic assignment of VLANs
- Jumbo packet support
  - Improves the performance of large data transfers; and supports frame sizes of up to 9,220 bytes
- IEEE 802.1v protocol VLANs
  - Isolate select non-IPv4 protocols automatically into their own VLANs
- Rapid per-VLAN spanning tree (RPVST+)
  - Allows each VLAN to build a separate spanning tree, improving link bandwidth usage in network environments with PVST+

### **L3 services**

- **NEW** DHCP server
  - Centralizes and reduces the cost of IPv4 address management

### **L3 routing**

- Static IP routing
  - Provides manually configured routing; includes ECMP capability
- RIP
  - Includes RIPv1 and RIPv2 routing
- 256 static and 2,048 RIP routes
  - Facilitate segregation of user data, without adding external hardware

### **Security**

- Multiple user authentication methods
  - IEEE 802.1X
    - Uses an IEEE 802.1X supplicant on the client, in conjunction with a RADIUS server, to authenticate in accordance with industry standards
  - Web-based authentication
    - Provides a browser-based environment, similar to IEEE 802.1X, to authenticate clients that do not support the IEEE 802.1X supplicant
  - MAC-based authentication
    - Authenticates the client with a RADIUS server, based on the client's MAC address
- Authentication flexibility
  - Multiple IEEE 802.1X users per port
    - Provides authentication of multiple IEEE 802.1X users per port; and helps prevent a user from "piggybacking" on another user's IEEE 802.1X authentication
  - Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port
    - Allows a switch port to accept up to 32 sessions of IEEE 802.1X, Web, and MAC authentications

- Access control lists (ACLs)  
Provide IP L3 filtering, based on the source/destination IP address/subnet and source/destination TCP/UDP port number
- Source-port filtering  
Allows only specified ports to communicate with each other
- RADIUS/TACACS+  
Eases switch management security administration by using a password authentication server
- IEEE 802.1X, MAC, or Web authentication  
Provides concurrent network access control and Web authentication of up to 24 clients per port
- Secure shell (SSH)  
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
- Port security  
Allows access only to specified MAC addresses, which can be learned or specified by the administrator
- MAC address lockout  
Helps prevent certain configured MAC addresses from connecting to the network
- Secure FTP  
Allows secure file transfer to and from the switch; and protects against unwanted file downloads or unauthorized copying of a switch configuration file
- Switch management logon security  
Helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
- Custom banner  
Displays the security policy when users log in to the switch
- STP bridge protocol data units (BPDUs) port protection  
Blocks BPDUs on ports that do not require BPDUs, mitigating forged BPDU attacks

- DHCP protection  
Blocks DHCP packets from unauthorized DHCP servers, mitigating denial-of-service attacks
- Dynamic ARP protection  
Blocks ARP broadcasts from unauthorized hosts, helping prevent eavesdropping or theft of network data
- STP root guard  
Protects the root bridge from malicious attacks or configuration mistakes
- Identity-driven ACL  
Enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- Per-port broadcast throttling  
Configures broadcast control selectively on heavy traffic port uplinks

#### **Monitor and diagnostics**

- Digital optical monitoring of SFP+ and 1000BASE-T transceivers  
Allows detailed monitoring of the transceiver settings and parameters

#### **Warranty and support**

- Limited Lifetime warranty 2.0  
Advance hardware replacement with next-business-day delivery (available in most countries). See [hp.com/networking/warrantysummary](http://hp.com/networking/warrantysummary) for duration details
- Electronic and telephone support (for Limited Lifetime Warranty 2.0)  
Limited 24x7 telephone support is available from HP for the first 3 years; limited electronic and business hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to [hp.com/networking/contact-support](http://hp.com/networking/contact-support); for details on the duration of support provided with your product purchase, refer to [hp.com/networking/warrantysummary](http://hp.com/networking/warrantysummary)
- Software releases  
To find software for your product, visit [hp.com/networking/support](http://hp.com/networking/support); for details on the software releases available with your product purchase, visit [hp.com/networking/warrantysummary](http://hp.com/networking/warrantysummary)

## HP 2920 Switch Series

### Specifications



	<b>HP 2920-24G Switch (J9726A)</b>	<b>HP 2920-24G-PoE+ Switch (J9727A)</b>	<b>HP 2920-48G Switch (J9728A)</b>
<b>Ports</b>	<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); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)</p> <p>2 module slots</p> <p>1 stacking module slot</p> <p>1 dual-personality (RJ-45 or USB micro-B)</p> <p>1 USB 1.1</p> <p>1 RJ-45 out-of-band management port</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+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>4 RJ-45 dual-personality 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+)</p> <p>2 module slots</p> <p>1 stacking module slot</p> <p>1 dual-personality (RJ-45 or USB micro-B)</p> <p>1 USB 1.1</p> <p>1 RJ-45 out-of-band management port</p>	<p>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); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)</p> <p>2 module slots</p> <p>1 stacking module slot</p> <p>1 dual-personality (RJ-45 or USB micro-B)</p> <p>1 USB 1.1</p> <p>1 RJ-45 out-of-band management port</p>
<b>Power supplies</b>	<p>1 power supply slot</p> <p>1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)</p>	<p>1 power supply slot</p> <p>1 minimum power supply required includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)</p>	<p>1 power supply slot</p> <p>1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)</p>
<b>Physical characteristics</b>	<p>17.42(w) x 13.23(d) x 1.75(h) in (44.25 x 33.6 x 4.45 cm) (1U height)</p> <p>11.57 lb (5.25 kg)</p>	<p>17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)</p> <p>12.04 lb (5.46 kg)</p>	<p>17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)</p> <p>11.95 lb (5.42 kg)</p>
<b>Weight</b>			
<b>Memory and processor</b>	<p>Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash MB; packet buffer size: 11.25 MB (6.75 MB dynamic egress + 4.5 MB ingress)</p>	<p>Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.5 MB dynamic egress + 4.5 MB ingress)</p>	<p>Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB dynamic egress + 4.5 MB ingress)</p>



	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)	HP 2920-48G Switch (J9728A)
<b>Performance</b>			
100 Mb Latency	< 9.0 $\mu$ s (FIFO 64-byte packets)	< 9.0 $\mu$ s (FIFO 64-byte packets)	< 9.0 $\mu$ s (FIFO 64-byte packets)
1000 Mb Latency	< 3.3 $\mu$ s (FIFO 64-byte packets)	< 3.3 $\mu$ s (FIFO 64-byte packets)	< 3.3 $\mu$ s (FIFO 64-byte packets)
10 Gb/s Latency	< 3.3 $\mu$ s (FIFO 64-byte packets)	< 3.3 $\mu$ s (FIFO 64-byte packets)	< 3.2 $\mu$ s (FIFO 64-byte packets)
Throughput	95.2 million pps	95.2 million pps	130.9 million pps
Switching capacity	128 Gb/s	128 Gb/s	176 Gb/s
Routing table size	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)
MAC address table size	16000 entries	16000 entries	16000 entries
<b>Environment</b>			
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing	15% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing	15% to 95%, noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 57 dB, Pressure: 41.4 dB	Power: 61 dB, Pressure: 44.9 dB	Power: 57 dB, Pressure: 41.8 dB
<b>Electrical characteristics</b>			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz Achieved Miercom Certified Green Award
80plus.org Certification	Silver	Silver	Silver
Maximum heat dissipation	198 BTU/hr (208.89 kJ/hr)	358 BTU/hr (377.69 kJ/hr)	239 BTU/hr (252.15 kJ/hr)
Voltage	100-240VAC	100-240VAC	100-240VAC
Maximum power rating	58 W	475 W	70 W
Idle power	26 W	42 W	27 W
PoE power		370 W	
<b>Notes</b>			
	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). 370 W of PoE+ power is available using the internal default power supply.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.

	<b>HP 2920-24G Switch (J9726A)</b>	<b>HP 2920-24G-PoE+ Switch (J9727A)</b>	<b>HP 2920-48G Switch (J9728A)</b>
<b>Safety</b>	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1, Second Edition; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010 +A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010 +A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010 +A12:2011; IEC 60950-1 (ed.2): am1
<b>Emissions</b>	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A
<b>Immunity</b>	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3	IEC 61000-3-3
<b>Management</b>	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
<b>Services</b>	Refer to the HP website at <a href="http://hp.com/networking/services">hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at <a href="http://hp.com/networking/services">hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at <a href="http://hp.com/networking/services">hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

## HP 2920 Switch Series

### Specifications (continued)



	HP 2920-48G-PoE+ Switch (J9729A)	HP 2920-48G-PoE+ 740W Switch (J9836A)
<b>Ports</b>	<p>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+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>4 RJ-45 dual-personality 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+)</p> <p>2 module slots</p> <p>1 stacking module slot</p> <p>1 dual-personality (RJ-45 or USB micro-B)</p> <p>1 USB 1.1</p> <p>1 RJ-45 out-of-band management port</p>	<p>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+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>4 RJ-45 dual-personality 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+)</p> <p>2 module slots</p> <p>1 stacking module slot</p> <p>1 dual-personality (RJ-45 or USB micro-B)</p> <p>1 USB 1.1</p> <p>1 RJ-45 out-of-band management port</p>
<b>Power supplies</b>	<p>1 power supply slot</p> <p>1 minimum power supply required</p> <p>includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)</p>	<p>1 power supply slot</p> <p>1 minimum power supply required</p> <p>includes: 1 x J9737A (HP X332 1050W 110-240VAC to 54VDC Power Supply)</p>
<b>Physical characteristics</b>	<p>17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.39 cm) (1U height)</p> <p>Weight 12.57 lb (5.7 kg)</p>	<p>17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.39 cm) (1U height)</p> <p>Weight 12.86 lb (5.83 kg)</p>
<b>Memory and processor</b>	<p>Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB dynamic egress + 4.5 MB ingress)</p>	<p>Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB dynamic egress + 4.5 MB ingress)</p>
<b>Performance</b>	<p>100 Mb Latency &lt; 9.0 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>1000 Mb Latency &lt; 3.2 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>10 Gb/s Latency &lt; 3.2 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>Throughput 130.9 million pps</p> <p>Switching capacity 176 Gb/s</p> <p>Routing table size 2048 entries (IPv4), 256 entries (IPv6)</p> <p>MAC address table size 16000 entries</p>	<p>100 Mb Latency &lt; 9.0 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>1000 Mb Latency &lt; 3.2 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>10 Gb/s Latency &lt; 3.2 <math>\mu</math>s (FIFO 64-byte packets)</p> <p>Throughput 130.9 million pps</p> <p>Switching capacity 176 Gb/s</p> <p>Routing table size 2048 entries (IPv4), 256 entries (IPv6)</p> <p>MAC address table size 16000 entries</p>
<b>Environment</b>	<p>Operating temperature 32°F to 131°F (0°C to 55°C)</p> <p>Operating relative humidity 15% to 95%, noncondensing</p> <p>Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)</p> <p>Nonoperating/Storage relative humidity 15% to 95%, noncondensing</p> <p>Altitude up to 10,000 ft (3 km)</p> <p>Acoustic Power: 62 dB, Pressure: 45.2 dB</p>	<p>Operating temperature 32°F to 131°F (0°C to 55°C)</p> <p>Operating relative humidity 15% to 95%, noncondensing</p> <p>Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)</p> <p>Nonoperating/Storage relative humidity 15% to 95%, noncondensing</p> <p>Altitude up to 10,000 ft (3 km)</p> <p>Acoustic Power: -53 dB, Pressure: -38.3 dB</p>

	HP 2920-48G-PoE+ Switch (J9729A)	HP 2920-48G-PoE+ 740W Switch (J9836A)
<b>Electrical characteristics</b>		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Silver	Gold
Maximum heat dissipation	399 BTU/hr (420.95 kJ/hr)	482 BTU/hr (508.51 kJ/hr)
Voltage	100-240VAC	110-240VAC
Maximum power rating	487 W	881 W
Idle power	46 W	52 W
PoE power	370 W	740 W
<b>Notes</b>		
	<p>Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.</p> <p>PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).</p> <p>370 W of PoE+ power is available using the internal default power supply.</p>	<p>Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.</p> <p>PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS).</p> <p>Idle power is the actual power consumption of the device with no ports connected. 740 W of PoE+ power is available using the internal default power supply.</p>
<b>Safety</b>		
	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1, Second Edition; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010 +A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1, Second Edition; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010 +A12:2011; IEC 60950-1 (ed.2): am1
<b>Immunity</b>		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
<b>Management</b>		
	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
<b>Services</b>		
	Refer to the HP website at <a href="http://hp.com/networking/services">hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at <a href="http://hp.com/networking/services">hp.com/networking/services</a> for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

**Standards and Protocols**

(applies to all products in series)

**Denial of service protection**

CPU DoS Protection

**Device management**

RFC 1155 Structure and Management Information (SMIv1)  
 RFC 1157 SNMPv1/v2c  
 RFC 1591 DNS (client)  
 RFC 1901 (Community based SNMPv2)  
 RFC 1901-1907 SNMPv2c, SMIv2 and Revised MIB-II  
 RFC 1908 (SNMPv1/2 Coexistence)

RFC 2578-2580 SMIv2  
 RFC 2579 (SMIv2 Text Conventions) HTTP, SSHv1, and Telnet  
 RFC 2580 (SMIv2 Conformance)  
 RFC 2819 (RMON groups Alarm, Event, History and Statistics only)  
 RFC 3416 (SNMP Protocol Operations v2)

RFC 3417 (SNMP Transport Mappings) HTML and telnet management  
 Multiple Configuration Files  
 Multiple Software Images  
 SNMPv3 and RMON RFC support  
 SSHv1/SSHv2 Secure Shell  
 TACACS/TACACS+

**General protocols**

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 802.3ab 1000BASE-T  
 IEEE 802.3ad Link Aggregation Control Protocol (LACP)  
 IEEE 802.3af Power over Ethernet  
 IEEE 802.3at PoE+  
 IEEE 802.3az Energy Efficient 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 1256 ICMP Router Discovery Protocol (IRDP)  
 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 2236 IGMP Snooping  
 RFC 2453 RIPv2  
 RFC 2865 Remote Authentication Dial In User Service (RADIUS)  
 RFC 2866 RADIUS Accounting  
 RFC 3046 DHCP Relay Agent Information Option  
 RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks  
 RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)  
 RFC 3413 Simple Network Management Protocol (SNMP) Applications

RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)  
 RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)  
 RFC 3416 Protocol Operations for SNMP  
 RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)  
 RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)  
 RFC 3576 Ext to RADIUS (CoA only)  
 RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches  
 RFC 4675 RADIUS VLAN & Priority  
 RFC 4861 Neighbor Discovery for IP version 6 (IPv6)  
 RFC 4862 IPv6 Stateless Address Autoconfiguration UDLD (Uni-directional Link Detection)

**IP multicast**

RFC 1112 IGMP

RFC 2236 IGMPv2  
 RFC 2710 Multicast Listener Discovery (MLD) for IPv6

RFC 3376 IGMPv3 (host joins only)

**IPv6**

RFC 1981 IPv6 Path MTU Discovery  
 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 2925 Remote Operations MIB (Ping only)  
 RFC 3019 MLDv1 MIB

RFC 3315 DHCPv6 (client and relay)  
 RFC 3484 Default Address Selection for IPv6  
 RFC 3513 IPv6 Addressing Architecture  
 RFC 3596 DNS Extension for IPv6  
 RFC 3810 MLDv2 (host joins only)  
 RFC 4022 MIB for TCP  
 RFC 4113 MIB for UDP  
 RFC 4251 SSHv6 Architecture  
 RFC 4252 SSHv6 Authentication  
 RFC 4253 SSHv6 Transport Layer  
 RFC 4254 SSHv6 Connection

RFC 4291 IP Version 6 Addressing Architecture  
 RFC 4293 MIB for IP  
 RFC 4419 Key Exchange for SSH  
 RFC 4443 ICMPv6  
 RFC 4541 IGMP & MLD Snooping Switch  
 RFC 4861 IPv6 Neighbor Discovery  
 RFC 4862 IPv6 Stateless Address Autoconfiguration  
 RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

**Standards and Protocols**

(applies to all products in series)

<b>MIBs</b>	<p>IEEE 802.1ap (MSTP and STP MIB's only)</p> <p>RFC 1155 Structure and ID of Management Information for TCP/IP Internets</p> <p>RFC 1156 (TCP/IP MIB)</p> <p>RFC 1157 A Simple Network Management Protocol(SNMP)</p> <p>RFC 1213 MIB II</p> <p>RFC 1493 Bridge MIB</p> <p>RFC 1724 RIPv2 MIB</p> <p>RFC 2021 RMONv2 MIB</p> <p>RFC 2578 Structure of Management Information Version 2 (SMIv2)</p>	<p>RFC 2579 Textual Conventions for SMIv2</p> <p>RFC 2580 Conformance Statements for SMIv2</p> <p>RFC 2613 SMON MIB</p> <p>RFC 2618 RADIUS Client MIB</p> <p>RFC 2620 RADIUS Accounting MIB</p> <p>RFC 2665 Ethernet-Like-MIB</p> <p>RFC 2668 802.3 MAU MIB</p> <p>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB</p> <p>RFC 2737 Entity MIB (Version 2)</p> <p>RFC 2819 RMON MIB</p>	<p>RFC 2863 The Interfaces Group MIB</p> <p>RFC 2925 Ping MIB</p> <p>RFC 2933 IGMP MIB</p> <p>RFC 3414 SNMP-User based-SM MIB</p> <p>RFC 3415 SNMP-View based-ACM MIB</p> <p>RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks</p> <p>RFC 3418 MIB for SNMPv3</p> <p>RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)</p>
<b>Network management</b>	<p>IEEE 802.1ab Link Layer Discovery Protocol (LLDP)</p> <p>RFC 1155 Structure of Management Information</p> <p>RFC 1157 SNMPv1</p> <p>RFC 2021 Remote Network Monitoring Management Information Base Version 2 using SMIv2</p> <p>RFC 2576 Coexistence between SNMP versions</p> <p>RFC 2578 Structure of Management Information Version 2 (SMIv2)</p> <p>RFC 2579 Textual Conventions for SMIv2</p>	<p>RFC 2580 Conformance Statements for SMIv2</p> <p>RFC 2819 Four groups of RMON: 1 (statistics), 2 (history)</p> <p>RFC 2819 Remote Network Monitoring Management Information Base 3 (alarm) and 9 (events)</p> <p>RFC 2856 Textual Conventions for Additional High Capacity Data Types</p> <p>RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations</p> <p>RFC 3164 BSD syslog Protocol</p>	<p>RFC 3176 sFlow</p> <p>RFC 3411 SNMP Management Frameworks</p> <p>RFC 3412 SNMPv3 Message Processing</p> <p>RFC 3414 SNMPv3 User-based Security Model (USM)</p> <p>RFC 3415 SNMPv3 View-based Access Control Model (VACM)</p> <p>RFC 5424 Syslog Protocol</p> <p>ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)</p> <p>SNMPv1/v2c/v3</p> <p>XRMON</p>
<b>QoS/CoS</b>	<p>IEEE 802.1P (CoS)</p>	<p>RFC 2474 DiffServ Precedence, including 8 queues/port</p> <p>RFC 2597 DiffServ Assured Forwarding (AF)</p>	<p>RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting</p>
<b>Security</b>	<p>IEEE 802.1X:Port-Based Network Access Control (2001)</p> <p>RFC 1321 The MD5 Message-Digest Algorithm</p> <p>RFC 1334 PPP Authentication Protocols (PAP)</p> <p>RFC 1492 An Access Control Protocol, Sometimes Called</p> <p>RFC 1492 TACACS+</p> <p>RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)</p> <p>RFC 2082 RIP-2 MD5 Authentication</p> <p>RFC 2104 Keyed-Hashing for Message Authentication</p> <p>RFC 2138 RADIUS Authentication</p> <p>RFC 2139 RADIUS Accounting</p> <p>RFC 2246 Transport Layer Security (TLS)</p> <p>RFC 2548 Microsoft® Vendor-specific RADIUS Attributes</p> <p>RFC 2618 RADIUS Authentication Client MIB</p>	<p>RFC 2620 RADIUS Accounting Client MIB</p> <p>RFC 2716 PPP EAP-TLS Authentication Protocol</p> <p>RFC 2818 HTTP Over TLS</p> <p>RFC 2865 RADIUS (client only)</p> <p>RFC 2865 RADIUS Authentication</p> <p>RFC 2866 RADIUS Accounting</p> <p>RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support Protocol (EAP)</p> <p>RFC 2868 RADIUS Attributes for Tunnel Protocol Support</p> <p>RFC 2869 RADIUS Extensions</p> <p>RFC 2882 NAS Requirements: Extended RADIUS Practices</p> <p>RFC 3162 RADIUS and IPv6 Secure Sockets Layer (SSL)</p> <p>RFC 3576 Dynamic Authorization Extensions to RADIUS</p>	<p>RFC 3579 RADIUS Support For Extensible Authentication</p> <p>RFC 3580 IEEE 802.1X RADIUS</p> <p>RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines</p> <p>RFC 4576 RADIUS Attributes Access Control Lists (ACLs)</p> <p>draft-grant-tacacs-02 (TACACS)</p> <p>Guest VLAN for 802.1x</p> <p>MAC Authentication</p> <p>MAC Lockdown</p> <p>MAC Lockout</p> <p>Port Security</p> <p>SSHv2 Secure Shell</p> <p>TACACS</p> <p>Web Authentication</p>

## HP 2920 Switch Series accessories

### Modules

- NEW** HP 2920 2-Port 10GbE SFP+ Module (J9731A)
- NEW** HP 2920 2-port 10GBASE-T Module (J9732A)
- NEW** HP 2920 2-Port Stacking Module (J9733A)

### Transceivers

- HP X121 1G SFP LC SX Transceiver (J4858C)
- HP X121 1G SFP LC LX Transceiver (J4859C)
- HP X122 1G SFP LC BX-D Transceiver (J9142B)
- HP X122 1G SFP LC BX-U Transceiver (J9143B)
- HP X121 1G SFP LC LH Transceiver (J4860C)
- HP X121 1G SFP RJ45 T Transceiver (J8177C)
- HP X111 100M SFP LC FX Transceiver (J9054C)
- HP X112 100M SFP LC BX-D Transceiver (J9099B)
- HP X112 100M SFP LC BX-U Transceiver (J9100B)
- HP X132 10G SFP+ LC SR Transceiver (J9150A)
- HP X132 10G SFP+ LC LR Transceiver (J9151A)
- HP X132 10G SFP+ LC LRM Transceiver (J9152A)
- HP X132 10G SFP+ LC ER Transceiver (J9153A)
- HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)
- HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)
- HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)
- HP X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable (J9286B)
- HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable (J9287B)
- HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A)
- HP X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9301A)
- HP X244 10G XFP to SFP+ 5m Direct Attach Copper Cable (J9302A)

### Cables

- HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
- HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
- HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
- HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
- HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
- HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
- HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)
- HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)
- HP 2920 0.5m Stacking Cable (J9734A)
- HP 2920 1.0m Stacking Cable (J9735A)
- HP 2920 3.0m Stacking Cable (J9736A)
- NEW** HP 640 External/Redundant Power Supply 1m Cable (J9806A)

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<b>Power Supply</b>	<b>NEW</b> HP 640 Redundant/External Power Supply Shelf (J9805A)
<b>Mounting Kit</b>	HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)
<b>HP 2920-24G Switch (J9726A)</b>	<b>NEW</b> HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)
<b>HP 2920-24G-PoE+ Switch (J9727A)</b>	<b>NEW</b> HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A) <b>NEW</b> HP X332 1050W 110-240VAC to 54VDC Power Supply (J9737A)
<b>HP 2920-48G Switch (J9728A)</b>	<b>NEW</b> HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)
<b>HP 2920-48G-PoE+ Switch (J9729A)</b>	<b>NEW</b> HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A) <b>NEW</b> HP X332 1050W 110-240VAC to 54VDC Power Supply (J9737A)
<b>HP 2920-48G-PoE+ 740W Switch (J9836A)</b>	<b>NEW</b> HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A) <b>NEW</b> HP X332 1050W 110-240VAC to 54VDC Power Supply (J9737A)

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