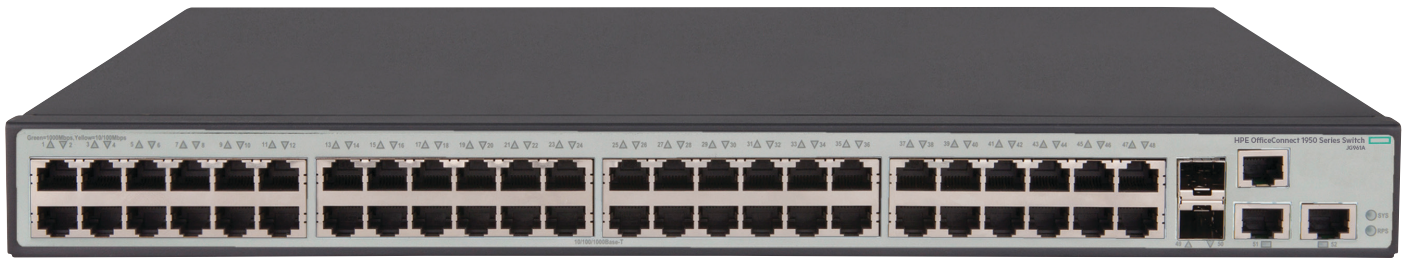**Hewlett Packard Enterprise**

HPE OfficeConnect 1950 Switch Series

Key features

- 10G Connectivity for fast network to servers and storage

- Combination of SFP+ and 10GBASE-T ports supports fiber and cost-effective copper connectivity

- True stacking allows for redundancy while simplifying administration

- Customized operation using intuitive Web interface

- Limited lifetime warranty

Product overview

The HPE OfficeConnect 1950 Series is a smart Web-managed 10-Gigabit and Gigabit platform for advanced small business networks needing the highest performance now or in the future.

The HPE OfficeConnect 1950 Switch Series includes five switches: New to the series is a 16-port 10-Gigabit aggregation switch that has 12 10GBASE-T and 4 SFP+ ports, which is ideal as the core of a high performance workgroup or small business network. Additional series models have Gigabit access ports with 10-Gigabit uplinks, including two standard and two PoE+ models in 24- and 48-port configurations. The access switches each have two 10GBASE-T ports supporting copper- based Category 6A-based cabling, and two 10G SFP+ ports for fiber connectivity. The PoE+ models both have a PoE power budget of 370 W to power up PoE/PoE+ compliant client devices.

The HPE OfficeConnect 1950 Switch Series has an intuitive Web-based interface for simple customization of network operation. It supports true stacking—of two aggregation switches and separately of up to four access switches—with multiple units logically administered as a single entity, simplifying administration while supporting greater network redundancy. Models support both rack mounting and desktop operation. These switches have IPv4 and IPv6 operation, with Layer 2 switching as well as Layer 3 static routing. Other features include: link aggregation to boost link performance; VLANs, Access Control Lists, and 802.1X network login for enhanced security; and three versions of Spanning Tree Protocol (STP) for added network resiliency. HPE OfficeConnect 1950 Switch Series includes a Limited Lifetime Warranty.

Features and benefits

Management

- True stacking

  Simplifies administration of multiple devices. Create a single logical managed unit with up to two HPE 1950 aggregation switches and up to four HPE 1950 access switches. Balance connections across multiple units with standard Link Aggregation (LACP) for enhanced network resiliency. Stack using affordable Cat 6A, or long distance fiber, or localized DAC cables. Stacked units can be co-located or separated physically

- Intuitive Web browser-based management

  Allows for easy customization of the switch—even by non-technical users

- Secure Web-management sessions with HTTPS/SSL

  Encrypts and otherwise protects management sessions through HTTP Secure (HTTPS). Prevents snooping of sensitive management information such as passwords

- SNMPv1, v2c, and v3

  Facilitates remote management of the switch, as the device can be discovered and monitored from an SNMP management station

- Complete session logging

  Provides detailed information for problem identification and resolution

- Dual flash images

  Provides independent primary and secondary operating system files for backup while upgrading

- Port mirroring

  Enables traffic on a port to be simultaneously sent to a network analyzer for monitoring

- Network Time Protocol (NTP)

  Synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time

- 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

- Limited Command Line Interface (CLI)

  Facilitates the deployment and initial configuration of the unit. Supports troubleshooting actions as well

- RMON

  Provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- Default DHCP client mode

  Simplifies device deployment. Connect a new out-of-the-box switch to a network with a DHCP server and the device will obtain its IP address automatically with plug-and-play operation. In the absence of a DHCP server, the switch will fall back to a unique static address determined by the switch's MAC address

- Cable diagnostic tool

  Used to remotely detect cable issues with cables attached to the switch

Quality of service (QoS)

• Traffic prioritization

Makes it possible to prioritize important and/or time-sensitive traffic ahead of less important traffic. Use with VoIP or video to optimize its performance on the network. Recognizes both IEEE 802.1p and DSCP prioritization tagging. Packets are mapped to eight hardware queues for more effective throughput

• Broadcast control

Allows limitation of broadcast traffic rate to cut down on unwanted network broadcast traffic

• Rate limiting

Sets per-port ingress enforced maximums and per-port, per-queue minimums

• Powerful QoS feature

Supports the following congestion actions: strict priority queuing (SP), weighted round robin (WRR) queuing, and SP+WRR

Connectivity

• Auto-MDI/MDIX

Adjusts automatically to straight-through or crossover cables on all 10/100/1000 and 10GBASE-T ports

• IEEE 802.3X flow control

Provides a configurable flow throttling mechanism propagated through the network to prevent packet loss at a congested node

• Packet storm protection

Protects against broadcast, multicast, or unicast storms with user-defined thresholds

• Jumbo frame supports up to 10-kilobyte frames

Improves efficiency of data transfers by allowing more data into a given packet. This is especially useful for transfers of large amounts of data. HPE 1950 Switches support up to 10-kilobyte frame sizes

• IEEE 802.3at Power over Ethernet (PoE+)

Delivers power to compliant devices over Ethernet cabling, greatly simplifying installation of those devices. The HPE 1950 Series has two PoE+ enabled models. The PoE+ 802.3at standard supports delivery of up to 30 watts of power to the attached devices, enough to support the latest models of IP phones, Wireless Access Points, video surveillance cameras, or other PoE/PoE+ enabled devices. HPE 1950 PoE+ models support 370 W of total PoE power

• IEEE 802.3af Power over Ethernet (PoE) ready

Delivers power to compliant devices over Ethernet cabling, greatly simplifying installation of those devices. HPE 1950 PoE+ models are fully backward compliant with the older PoE standard which provides up to 15.4 W of PoE power per port to attached devices

• Available redundant power for aggregation and PoE+ models

Optional Redundant Power System is available to add power redundancy and to supplement the PoE power of the PoE+ switches. With the optional RPS, the switch will continue operating even if the unit internal power supply fails; additionally, the PoE+ power budget can be increased to 740 Watts on 24-port PoE+ model and 800 Watts on 48-port PoE+ model

- Fully IPv6 capable
  - IPv6 host

    Enables switches to be managed and deployed at the IPv6 network's edge
  - IPv6 routing

    Supports IPv6 static routes
  - MLD snooping

    Forwards IPv6 multicast traffic to the appropriate interface, preventing traffic flooding
  - IPv6 ACL/QoS

    Supports ACL and QoS for IPv6 network traffic

Security

- Access Control Lists (ACLs)

  Gives granular control over what traffic goes where in the network. Allows for traffic filtering. ACLs rules can be based on MAC-address or IP-address. ACL rules can be time-based to implement access control during certain hours or days

- IEEE 802.1X and RADIUS network logins

  Controls port-based access for authentication and accountability

- Port isolation

  The port isolation feature isolates Layer 2 traffic for data privacy and security without using VLANs. This feature can also be used to isolate the hosts in a VLAN from one another

- ARP attack protection

  The ARP detection feature enables access devices to block ARP packets from unauthorized clients to prevent user spoofing and gateway spoofing attacks

- Automatic VLAN assignment

  Assigns users automatically to the appropriate VLAN based on their identity, location and time of day

- STP BPDU port protection

  Blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

- STP root guard

  Protects the root bridge from malicious attacks or configuration mistakes

- Automatic denial-of-service protection

  Protects the network by blocking malicious DoS attacks aimed at the switch itself

- Management password

  Provides security so that only authorized access to the Web browser interface is allowed

Performance
- Half-/full-duplex auto-negotiating capability on every port doubles the throughput of every port

- 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

- IGMP/MLD Snooping

  Improves network performance by filtering multicast traffic when there is no multicast receiver on a connection. Without this, multicast traffic is flooded to all ports. IGMP snooping is used in IPv4 networks. The IPv6 equivalent—MLD Snooping—is also supported

- 10-Gigabit SFP+ based Fiber ports

  Supports high-bandwidth connections over fiber. HPE 1950 Switches come with SFP+ transceiver slots supporting 10-Gigabit fiber-based connections using optional 10G transceivers. Fiber is particularly suited for connecting at distances beyond the 100 Meter limitation of copper-based Cat 6A cabling. Alternatively use the SFP+ ports for redundant stacking using Direct Attached Cables (DAC)

- 10-Gigabit 10GBASE-T RJ45 ports

  Supports high-bandwidth connections over Cat 6A cabling. HPE 1950 Switches come with 10GBASE-T RJ45 ports supporting 10-Gigabit copper-based connections. Cat 6A is economical and practical for distances up to 100 Meters. Alternatively use the 10GBASE-T ports for redundant stacking

Layer 2 switching
- VLAN support and tagging

  Supports IEEE 802.1Q with 4,094 simultaneous VLAN IDs

- STP

  Supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

- BPDU filtering

  Improves network efficiency by filtering unnecessary BPDU packets on a port. When STP is enabled globally but disabled on specific ports, BPDU packets are not sent out the ports where STP is disabled

Layer 3 services
- Address Resolution Protocol (ARP)

  Determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network

- DHCP Relay

  Simplifies management of DHCP addresses in networks with multiple subnets

Layer 3 routing
- Static IPv4/IPv6 routing

  Provides basic routing (supporting up to 512 static routes and 32 VLAN interface on aggregation model; 32 static routes and 8 VLAN interfaces on access models); allows manual routing configuration

Resiliency and high availability
• Link aggregation

Groups together up to 8 ports per trunk automatically using Link Aggregation Control Protocol (LACP), or manually, to form an ultra-high-bandwidth connection to the network backbone; helps prevent traffic bottlenecks. The switches support up to 128 trunks

Convergence
• LLDP-MED (Media Endpoint Discovery)

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

• Auto voice VLAN

Recognizes IP phones and automatically assigns voice traffic to dedicated VLAN for IP phones

• PoE Models For Converged Voice/Data Networks

Simplifies and lowers the cost of installing a converged infrastructure. Power IP phones, Access Points, Video Surveillance cameras, or other PoE-enabled devices. HPE 1950 Switches support multiple methods of allocating PoE power—IEEE 802.3af class, LLDP-MED, or user-specified— for more efficient energy usage

Additional information
• Green initiative support

Provides support for RoHS and WEEE regulations

• Green IT and power

Improves energy efficiency through the use of the latest advances in silicon development; shuts off unused ports and utilizes variable-speed fans, reducing energy costs

• Energy Efficient Ethernet

Compliant with IEEE 802.3az standard requirements to save energy during periods of low data activity

Warranty and support
• Limited Lifetime Warranty

See **hpe.com/officeconnect/support** for warranty and support information included with your product purchase.

HPE OfficeConnect 1950 Switch Series

Specifications	HPE OfficeConnect 1950 12XGT 4SFP+ Switch (JH295A)	HPE OfficeConnect 1950 24G 2SFP+ 2XGT Switch (JG960A)	HPE OfficeConnect 1950 48G 2SFP+ 2XGT Switch (JG961A)
I/O ports and slots	12 RJ-45 1/10GBASE-T ports 4 SFP+ fixed 1000/10000 SFP+ ports	24 RJ45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 2 SFP+ fixed 1000/10000 SFP+ ports 2 RJ45 1/10GBASE-T ports	48 RJ45 auto-negotiating 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 2 SFP+ fixed 1000/10000 SFP+ ports 2 RJ45 1/10GBASE-T ports
Additional ports and slots	1 dual-personality (RJ-45 or Mini USB) console port to access limited CLI port 1 RJ-45 out-of-band management port	1 RJ45 console port to access limited CLI	1 RJ45 console port to access limited CLI
Physical characteristics Dimensions Weight	 17.32(w) x 6.3(d) x 1.73(h) in (44 x 16 x 4.4 cm) (1U height) 8.07 lb (3.66 kg)	 17.17(w) x 6.3(d) x 1.73(h) in. (43.6 x 16 x 4.4 cm) (1U height) 6.61 lb (3 kg)	 17.32(w) x 10.63(d) x 1.73(h) in. (44 x 27 x 4.4 cm) (1U height) 11.02 lb (5 kg)
Memory and processor	Cortex-A9 @ 1.25 MHz, 512 MB flash; Packet buffer size: 2 MB, 1 GB SDRAM	Cortex-A9 @ 1 GHz, 128 MB flash; packet buffer size: 1.5 MB, 1 GB SDRAM	Cortex-A9 @ 1 GHz, 128 MB flash; packet buffer size: 3 MB, 1 GB SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)
Performance 100 Mb Latency 1000 Mb Latency 10 Gbps Latency Throughput Routing/Switching capacity Routing table size MAC address table size	 < 5 µs < 5 µs < 1.5 µs Up to 238 Mpps (64-byte packets) 320 Gbps 512 entries (IPv4), 256 entries (IPv6) 16384 entries	 < 5 µs < 5 µs < 1.5 µs Up to 95.2 Mpps (64-byte packets) 128 Gbps 32 entries (IPv4), 32 entries (IPv6) 16384 entries	 < 5 µs < 5 µs < 1.5 µs Up to 130.9 Mpps (64-byte packets) 176 Gbps 32 entries (IPv4), 32 entries (IPv6) 16384 entries
Reliability MTBF (years)	 81.8	 87.2	 51

Specifications	HPE OfficeConnect 1950 12XGT 4SFP+ Switch (JH295A)	HPE OfficeConnect 1950 24G 2SFP+ 2XGT Switch (JG960A)	HPE OfficeConnect 1950 48G 2SFP+ 2XGT Switch (JG961A)
Environment			
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 90%, noncondensing	10% to 90%, noncondensing	10% to 90%, 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	5% to 95%, noncondensing	5% to 95%, noncondensing	5% to 95%, noncondensing
Altitude	Up to 16,404 ft (5 km)	Up to 16,404 ft (5 km)	Up to 16,404 ft (5 km)
Acoustic	ISO 7779	Low-speed fan: 19.0 dB, High-speed fan: 44.5 dB; ISO 7779 Dual speed fan	Low-speed fan: 38.4 dB, High-speed fan: 47.0 dB; ISO 7779 Dual speed fan
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
AC voltage	100–240 VAC	100–240 VAC	100–240 VAC
Maximum power rating	75 W	34 W	54 W
	Notes: Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	**Notes:** Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	**Notes:** Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950; IEC 60950-1; EN 60950-1; GB 4943.1	UL 60950; IEC 60950-1; EN 60950-1; GB 4943.1	UL 60950; IEC 60950-1; EN 60950-1; GB 4943.1
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A
Management	IMC—Intelligent Management Center; Limited command-line interface; Web browser; SNMP manager; HTTPS; RMON1; FTP; Supported by HPE IMC and generic SNMP management platforms. Refer to documentation for MIB support details.	IMC—Intelligent Management Center; Limited command-line interface; Web browser; SNMP manager; HTTPS; RMON1; FTP; Supported by HPE IMC and generic SNMP management platforms. Refer to documentation for MIB support details.	IMC—Intelligent Management Center; Limited command-line interface; Web browser; SNMP manager; HTTPS; RMON1; FTP; Supported by HPE IMC and generic SNMP management platforms. Refer to documentation for MIB support details.
Services	Refer to the Hewlett Packard Enterprise website at **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.	Refer to the Hewlett Packard Enterprise website at **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.	Refer to the Hewlett Packard Enterprise website at **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.

HPE OfficeConnect 1950 Switch Series

Specifications	HPE OfficeConnect 1950 24G 2SFP+ 2XGT PoE+ (370W) Switch (JG962A)	HPE OfficeConnect 1950 48G 2SFP+ 2XGT PoE+ (370W) Switch (JG963A)
I/O ports and slots	24 RJ45 auto-negotiating 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3af PoE, IEEE 802.3at)	48 RJ45 auto-negotiating 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3af PoE, IEEE 802.3at)
	2 SFP+ fixed 1000/10000 SFP+ ports	2 SFP+ fixed 1000/10000 SFP+ ports
	2 RJ45 1/10GBASE-T ports	2 RJ45 1/10GBASE-T ports
Additional ports and slots	1 RJ45 console port to access limited CLI	1 RJ45 console port to access limited CLI
Physical characteristics		
Dimensions	17.32(w) x 14.17(d) x 1.73(h) in. (44 x 36 x 4.4 cm) (1U height)	17.32(w) x 16.54(d) x 1.73(h) in. (44 x 42 x 4.4 cm) (1U height)
Weight	13.23 lb (6 kg)	15.43 lb (7 kg)
Memory and processor	Cortex-A9 @ 1 GHz, 128 MB flash; Packet buffer size: 1.5 MB, 1 GB SDRAM	Cortex-A9 @ 1 GHz, 128 MB flash; Packet buffer size: 3 MB, 1 GB SDRAM
Mounting and enclosure	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)	Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)
Performance		
100 Mb Latency	< 5 µs	< 5 µs
1000 Mb Latency	< 5 µs	< 5 µs
10 Gbps Latency	< 1.5 µs	< 1.5 µs
Throughput	Up to 95.2 Mpps (64-byte packets)	Up to 130.9 Mpps (64-byte packets)
Routing/Switching capacity	128 Gbps	176 Gbps
Routing table size	32 entries (IPv4), 32 entries (IPv6)	32 entries (IPv4), 32 entries (IPv6)
MAC address table size	16384 entries	16384 entries
Reliability		
MTBF (years)	44.4	26.8
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	10% to 90%, noncondensing	10% to 90%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing	5% to 95%, noncondensing
Altitude	Up to 16,404 ft (5 km)	Up to 16,404 ft (5 km)
Acoustic	Low-speed fan: 37.3 dB, High-speed fan: 47.1 dB; ISO 7779 Dual speed fan	Low-speed fan: 47.3 dB, High-speed fan: 50.0 dB; ISO 7779 Dual speed fan

Specifications	HPE OfficeConnect 1950 24G 2SFP+ 2XGT PoE+ (370W) Switch (JG962A)	HPE OfficeConnect 1950 48G 2SFP+ 2XGT PoE+ (370W) Switch (JG963A)
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
Voltage	100–240 VAC	100–240 VAC
Maximum power rating	425 W	470 W
PoE power	370 W PoE+	370 W PoE+
	Notes:	**Notes:**
	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	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).	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).
	When supplemented with the use of an HPE RPS1600 Redundant Power System, up to 740 W of PoE+ can be supplied. Unit max. power consumption with RPS is 770 W.	When supplemented with the use of an HPE RPS1600 Redundant Power System, up to 800 W of PoE+ can be supplied. Unit max. power consumption with RPS is 910 W.
Safety	UL 60950; IEC 60950-1; EN 60950-1; GB 4943.1	UL 60950; IEC 60950-1; EN 60950-1; GB 4943.1
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; EN 55024; EN 61000-3-2 2000, 61000-3-3; ICES-003 Class A
Management	IMC—Intelligent Management Center; Limited command-line interface; Web browser; SNMP manager; HTTPS; RMON1; FTP; Supported by HPE IMC and generic SNMP management platforms. Refer to documentation for MIB support details.	IMC—Intelligent Management Center; Limited command-line interface; Web browser; SNMP manager; HTTPS; RMON1; FTP; Supported by HPE IMC and generic SNMP management platforms. Refer to documentation for MIB support details.
Services	Refer to the Hewlett Packard Enterprise website at **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.	Refer to the Hewlett Packard Enterprise website at **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.

Standards and Protocols
(applies to all products in series)

IP Multicast Snooping	RFC 1112 IGMPv1 RFC 3376 IGMPv3		
Device management	RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 2573 (SNMPv3 Applications)	RFC 2819 (RMON groups Alarm, Event, History, and Statistics only) RFC 3416 (SNMP Protocol Operations v2)	
General protocols	IEEE 802.1D MAC Bridges IEEE 802.1D Spanning Tree Protocol IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.3 Type 10BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3ac VLAN Tagging Extension IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3ae 10-Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at PoE+ IEEE 802.3az Energy Efficient Ethernet IEEE 802.3i 10BASE-T IEEE 802.3u 100BASE-X IEEE 802.3x Flow Control IEEE 802.3z 1000BASE-X	RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 894 IP over Ethernet RFC 950 Internet Standard Subnetting Procedure RFC 951 BOOTP RFC 1027 Proxy ARP RFC 1042 IP Datagrams RFC 1071 Computing the Internet Checksum RFC 1123 Requirements for Internet Hosts RFC 1213 Management Information Base for Network Management of TCP/IP-based Internet RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1533 DHCP Options and BOOTP Vendor Extensions RFC 1812 IPv4 Routing RFC 1866 Hypertext Markup Language—2.0 RFC 2131 DHCP	RFC 2236 IGMP Snooping RFC 2462 IPv6 Stateless Address Auto-configuration RFC 2616 HTTP Compatibility v1.1 RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types RFC 2668 Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs) 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 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3587 IPv6 Global Unicast Address Format RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
IPv6	RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery RFC 2463 ICMPv6 RFC 2464 Transmission of IPv6 over Ethernet Networks	RFC 3162 RADIUS and IPv6 RFC 3315 DHCPv6 (client and relay) RFC 3484 Default Address Selection for IPv6 RFC 3736 Stateless Dynamic Host Configuration Protocol (DHCP) Service for IPv6	RFC 4291 IP version 6 Addressing Architecture RFC 4293 MIB for IP RFC 4443 ICMPv6 RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration
MIBs	RFC 1212 Concise MIB Definitions RFC 1213 MIB II RFC 1493 Bridge MIB RFC 1757 Remote Network Monitoring RFC 2021 RMONv2 MIB RFC 2096 IP Forwarding Table MIB RFC 2233 Interface MIB RFC 2571 SNMP Framework MIB RFC 2572 SNMP-MPD MIB	RFC 2573 SNMP-Notification MIB RFC 2573 SNMP-Target MIB RFC 2574 SNMP USM MIB RFC 2613 SMON MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2665 Ethernet-Like-MIB	RFC 2668 802.3 MAU MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2819 RMON MIB RFC 2863 The Interfaces Group MIB RFC 2925 Ping MIB RFC 3414 SNMP-User based-SM MIB RFC 3415 SNMP-View based-ACM MIB RFC 3418 MIB for SNMPv3 RFC 3621 Power Ethernet MIB
Network management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	RFC 2819 (RMON groups Alarm, Event, History, and Statistics only)	RFC 1215 SNMP Generic traps ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
Security		IEEE 802.1X Port Based Network Access Control	RFC 1492 TACACS+ RFC 2138 RADIUS Authentication RFC 2139 RADIUS Accounting RFC 2865 RADIUS (client only) RFC 2866 RADIUS Accounting

HPE OfficeConnect 1950 Switch Series accessories

Transceivers	HPE X130 10G SFP+ LC SR Transceiver (JD092B)
	HPE X130 10G SFP+ LC LR Transceiver (JD094B)
	HPE X120 1G SFP LC SX Transceiver (JD118B)
	HPE X120 1G SFP LC LX Transceiver (JD119B)
	HPE X120 1G SFP RJ45 1000BASE-T Transceiver (JD089B)
Cables	HPE X240 10G SFP+ SFP+ 0.65m DAC C-Cable (JH693A)
	HPE X240 10G SFP+ SFP+ 1.2m DAC C-Cable (JH694A)
	HPE X240 10G SFP+ SFP+ 3m DAC C-Cable (JH695A)
HPE OfficeConnect 1950 12XGT 4SFP+ Switch (JH295A)	HPE RPS800 Redundant Power Supply (JD183A)
	HPE X290 500/800 1m RPS Cable (JD190A)
HPE OfficeConnect 1950 24G 2SFP+ 2XGT PoE+ (370W) Switch (JH962A)	HPE RPS1600 Redundant Power System (JG136A)
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