



VYSOKÁ ŠKOLA POLYTECHNICKÁ JHLAVA	
Č. VŠPJ	05868/1819
Došlo dne:	29. 10. 2019 hod
Počet listů:	
Počet a druh příloh:	
Z toho listů:	

KUPNÍ SMLOUVA

uzavřená podle ustanovení § 2079 a násl. zákona č. 89/2012 Sb., občanský zákoník, ve znění pozdějších předpisů (dále jen „občanský zákoník“)

číslo smlouvy prodávajícího:

číslo smlouvy kupujícího: 19/1808/0003

1. SMLUVNÍ STRANY

Kupující:

Název: Vysoká škola polytechnická Jihlava
Se sídlem: Tolstého 1556/16, 586 01 Jihlava
Zřízen zákonem č. 375/2004 Sb., o zřízení Vysoké školy polytechnické Jihlava
Zastoupen: prof. MUDr. Václavem Báčou, Ph.D., rektorem
Oprávněný zástupce k převzetí dodávky: Ondřej Chalupa, DiS.
Bankovní spojení: 86-2735860297/0100 Komerční banka, a. s., pobočka Jihlava
IČ: 71226401
DIČ: CZ71226401
Tel./ Fax: +420 567 141 111 / +420 567 300 727
E-mail: vspj@vspj.cz

(dále jen jako „kupující“)

a

Prodávající:

Název: C SYSTEM CZ a.s.
Se sídlem: Otakara Ševčíka 840/10, 636 00 Brno
Zapsaný v obchodním rejstříku: vedeného u Krajského soudu v Brně, oddíl B, vložka 4576
Zástupce pro jednání ve věcech smluvních: Mgr. Roman Klimus, předseda představenstva
Oprávněný zástupce k předání dodávky: Ing. Pavel Süß
Bankovní spojení: Komerční banka, a.s., č. účtu 35-4770570227/0100
IČ: 27675645
DIČ: CZ27675645
Tel: +420 532 140 111
E-mail: info@cssystem.cz

(dále jen jako „prodávající“)

Uzavírají níže uvedeného dne, měsíce a roku na základě konsensu o všech níže uvedených ustanoveních tuto kupní smlouvu (dále jako „smlouva“).

2. PŘEDMĚT SMLOUVY

- 2.1 Předmětem této kupní smlouvy je koupě a následné dodání síťové infrastruktury, jejíž přesná specifikace je uvedena v Příloze č. 1 - Specifikace dodávky a záručních lhůt, která tvoří nedílnou součást této kupní smlouvy (dále jen „předmět koupě“).
- 2.2 Prodávající se touto smlouvou zavazuje, že kupujícímu odevzdá předmět koupě a umožní mu nabýt vlastnické právo k předmětu koupě a kupující se zavazuje, že předmět koupě od prodávajícího převezme a zaplatí za něj kupní cenu, jejíž výše je uvedena v článku 3 této smlouvy.
- 2.3 Prodávající prohlašuje, že je výlučným vlastníkem předmětu koupě, že předmět koupě je prostý právních vad a má vlastnosti stanovené obecně závaznými právními předpisy a příslušnými technickými normami.
- 2.4 Pořízení předmětu koupě je spolufinancováno Operačním programem Výzkum, vývoj a vzdělávání, název projektu: Zkvalitnění výukového prostředí na VŠPJ, registrační číslo: CZ.02.2.67/0.0/0.0/17_044/0008560.

3. KUPNÍ CENA, PLATEBNÍ A FAKTURAČNÍ PODMÍNKY

- 3.1 Kupní cena je dohodou smluvních stran stanovena jako pevná a nejvýše přípustná a činí:

Cena celkem bez DPH	963 600,00 Kč
Sazba DPH 21 %	202 356,00 Kč
Cena celkem včetně DPH	1 165 956,00 Kč

- 3.2 Kupní cena může být překročena pouze v souvislosti se změnou daňových předpisů.
- 3.3 Cenu uhradí kupující na základě faktury vystavené prodávajícím po řádném a včasném předání předmětu koupě. Přílohou faktury bude předávací protokol (dodací list) podepsaný zástupci obou stran.
- 3.4 Splatnost faktury je dohodou smluvních stran stanovena na 30 dnů ode dne jejího prokazatelného doručení kupujícímu. Zaplacením se pro účely této kupní smlouvy rozumí připsání příslušné částky na účet prodávajícího. Faktura musí obsahovat veškeré náležitosti daňového dokladu podle zákona č. 563/1991 Sb., o účetnictví ve znění pozdějších předpisů a zákona č. 235/2004 Sb., o dani z přidané hodnoty, ve znění pozdějších předpisů. Kupující si vyhrazuje právo před uplynutím lhůty splatnosti vrátit fakturu, pokud nebude obsahovat požadované náležitosti nebo nebude obsahovat správné cenové údaje. Oprávněným vrácením faktury přestává běžet původní lhůta splatnosti. Opravená nebo přepracovaná faktura bude opatřena novou lhůtou splatnosti.
- 3.5 Kupující neposkytuje zálohy.

4. TERMÍN PLNĚNÍ, MÍSTO A ZPŮSOB PŘEDÁNÍ PŘEDMĚTU KOUPE

- 4.1 Prodávající se zavazuje předat kupujícímu předmět koupě nejpozději **do 31. 10. 2019**.
- 4.2 Předání předmětu koupě se uskuteční na základě předávacího protokolu (dodacího listu), podepsaného oprávněnými zástupci obou smluvních stran.

- 4.3 Vlastnictví k předmětu koupě přechází na kupujícího okamžikem předání dle odstavce 4.2 tohoto článku.
- 4.4 Žádná ze smluvních stran neodpovídá za porušení svých povinností vyplývajících z této kupní smlouvy, bylo-li způsobeno vyšší mocí. Za vyšší moc se považuje okolnost, která nastala nezávisle na vůli povinné strany, pokud brání ve splnění povinností, přičemž nelze spravedlivě požadovat, aby povinná strana tuto překážku nebo její následky překonala či odvrátila, a to ani vynaložením veškerého úsilí, na kterém lze trvat. O dobu, po kterou vyšší moc trvá, se též prodlužují lhůty k plnění podle této kupní smlouvy. Povinná strana se nemůže odvolat vyšší mocí, pokud by na její účinky bez zbytečného odkladu písemně neupozornila.
- 4.5 Místem plnění je sídlo kupujícího na adrese Tolstého 1556/16, 586 01 Jihlava.

5. ZÁRUČNÍ DOBA / SERVIS

- 5.1 Prodávající poskytuje kupujícímu na předmět koupě záruku za jakost ve smyslu ust. § 2113 a násl. občanského zákoníku, a to po záruční dobu dle Přílohy č. 1 (Specifikace dodávky a záručních lhůt), která tvoří nedílnou součást této kupní smlouvy.
- 5.2 Počátek běhu záruční doby je stanoven na den následující po dni protokolárního předání a převzetí předmětu koupě.
- 5.3 Záruka za jakost se prodlužuje o dobu mezi uplatněním vad (obdržením reklamace) prodávajícím a prokazatelným odstraněním vady.
- 5.4 Vady uplatněné kupujícím v záruční době prodávající odstraní neodkladně a bezplatně, nejdéle však do 30 dnů ode dne uplatnění vady.

6. SANKCE

- 6.1 Prodávající se zavazuje zaplatit kupujícímu smluvní pokutu za nedodržení konečného termínu předání předmětu koupě 0,2 % z kupní ceny za každý den prodlení.
- 6.2 V případě nedodržení lhůty pro vyřízení záruční opravy dle článku 5.4 této smlouvy je prodávající povinen kupujícímu zaplatit smluvní pokutu ve výši 500,- Kč za každý den prodlení prodávajícího s odstraněním uplatněné vady, maximálně však do výše kupní ceny. Zaplacením smluvní pokuty nezaniká povinnost prodávajícího závazek splnit a není tím dotčeno právo kupujícího na náhradu škody, která nesplněním povinnosti vznikla.
- 6.3 Sankce sjednané touto kupní smlouvou hradí strana povinná straně oprávněné na základě vystavené a zaslané faktury - daňového dokladu, nezávisle na tom, zda a v jaké výši vznikne druhé smluvní straně v této souvislosti škoda, kterou lze vymáhat samostatně. Sankce uhradí strana povinná straně oprávněné na základě vyúčtování vystaveného stranou oprávněnou a doručeného straně povinné. Při prodlení s placením sankcí může strana oprávněná účtovat straně povinné úrok z prodlení ve výši 0,05 % z nezaplacené částky za každý započatý kalendářní den prodlení. Strana povinná musí tento úrok z prodlení straně oprávněné zaplatit.

- 6.4 Sankce jsou splatné do 14 kalendářních dnů ode dne doručení písemné výzvy (faktury) k jejich zaplacení povinné smluvní straně.
- 6.5 V případě, že vznikne povinnost platit smluvní pokutu oběma stranám, může být proveden na základě písemné dohody smluvních stran jejich zápočet.

7. ZÁVĚREČNÁ UJEDNÁNÍ

- 7.1 Tato smlouva se řídí právním řádem České republiky a vyhotovuje ve dvou vyhotoveních, z nichž jedno je určeno pro kupujícího a jedno pro prodávajícího.
- 7.2 Tuto smlouvu lze měnit pouze formou písemných, číslovaných dodatků, podepsaných oprávněnými zástupci obou smluvních stran.
- 7.3 Prodávající je povinen uchovat veškeré dokumenty související s plněním této smlouvy a na vyžádání je předložit orgánům oprávněným provádět věcnou a finanční kontrolu, a to po dobu danou právními předpisy ČR k jejich archivaci (zákon č. 563/1991 Sb., o účetnictví a zákon č. 235/2004 Sb., o dani z přidané hodnoty).
- 7.4 Nedílnou součástí této kupní smlouvy je Příloha č. 1 (Specifikace dodávky a záručních lhůt).
- 7.5 Smluvní strany prohlašují, že smlouva byla sepsána dle jejich pravé a svobodné vůle, nikoli v tísní a za nápadně nevýhodných podmínek.
- 7.6 Vztahy smluvních stran touto kupní smlouvou blíže neupravené se řídí příslušnými ustanoveními občanského zákoníku.
- 7.7 Tato smlouva nabývá platnosti dnem podpisu oprávněnými zástupci obou smluvních stran a účinnosti dnem zveřejnění v registru smluv v souladu se zákonem č. 340/2015 Sb., o registru smluv, v platném znění.
- 7.8 Smluvní strany mají právo od kupní smlouvy odstoupit z důvodu jejího podstatného porušení. Za podstatné porušení smlouvy ze strany prodávajícího se také považuje neplnění dohodnutých časových termínů.

V Jihlavě dne 13. 10. 2019

V BRNO dne 15. 10. 2019

prof. MUDr. Václav Báča, Ph.D.
rektor

za kupujícího

C SYSTEM CZ a.s.
Otakara Ševčíka 58, 602 00 Brno
Tel.: 532 240 111, Fax: 531 140 118
IČ: 273 75 645 DIČ: CZ273 345

za prodávajícího

PŘÍLOHA Č. 1

- Specifikace dodávky a záručních lhůt -

Označení	Typ	Technická specifikace	Záruční doba / servis
L3 přepínač	Aruba 2540 48G 4SFP+ Switch, včetně SFP+ transceiver 10GBASE-LR/LW	Technické parametry jsou plně v souladu s požadavky zadavatele uvedenými v zadávací dokumentaci. Technický list přiložen.	Záruka na hardware s výměnou NBD v délce 84 měsíců. Tato záruka je garantovaná výrobcem zařízení.
L3 PoE přepínač	3x HPE 1920S 24G 2SFP PoE+ 370W Swch, včetně 2x SFP transceiver 1,25Gbps, 1000BASE-LX, SM pro každý switch	Technické parametry jsou plně v souladu s požadavky zadavatele uvedenými v zadávací dokumentaci. Technický list přiložen.	Záruka na hardware s výměnou NBD v délce 84 měsíců. Tato záruka je garantovaná výrobcem zařízení.
Přístupový bod	34 ks Aruba AP-515 (RW) Unified AP, včetně AP-MNT-D AP mount bracket a Aruba Cntrlr Per AP Capacity Lic E-LTU	Technické parametry jsou plně v souladu s požadavky zadavatele uvedenými v zadávací dokumentaci. Technický list přiložen.	Záruka na hardware s výměnou NBD v délce 84 měsíců. Tato záruka je garantovaná výrobcem zařízení.

Označení	Počet ks	Cena za 1 ks bez DPH	Cena celkem bez DPH	Cena celkem s DPH
L3 přepínač ⁽¹⁾	10	34 380,00	343 800,00	415 998,00
L3 PoE přepínač	3	11 100,00	33 300,00	40 293,00
Přístupový bod ⁽²⁾	34	17 250,00	586 500,00	709 665,00

(1) Financováno projektem Zkvalitnění výukového prostředí na VŠPJ, registrační číslo: CZ.02.2.67/0.0/0.0/17_044/0008560.

(2) Spolufinancováno projektem Zkvalitnění výukového prostředí na VŠPJ, registrační číslo: CZ.02.2.67/0.0/0.0/17_044/0008560.

V Jihlavě dne 23. 10. 2019

V BRNĚ dne 25. 10. 2019

prof. MUDr. Václav Báča, Ph.D.
rektor

za kupujícího

C SYSTEM CZ a.s.
Otakara Ševčíka 56, 636 00 Brno
Tel.: 532 140 111, Fax: 531 140 118
IČ: 275 75 645 DIČ: CZ275 345

za prodávajícího

Plná moc

Zmocnitel: C SYSTEM CZ a.s.
se sídlem Otakara Ševčíka 840/10, Židenice, 636 00 Brno; IČ: 27675645
zapsaná v obchodním rejstříku vedeném u Krajského soudu v Brně, spisová značka B 4576
zastoupená Mgr. Romanem Klimusem, předsedou představenstva

Zmocněnec: Martin Čuhel
Narozen 12.12.1984 trvale bytem Pod Zárubou 531, 664 34 Kuřim

Zmocnitel tímto uděluje zmocněnci plnou moc k jednání se třetími stranami, uzavírání smluv se třetími stranami a přijímání objednávek učiněných těmito třetími stranami, pokud předmětem těchto právních jednání bude dodávka zboží nebo služeb Zmocnitele těmito třetími stranám v rámci běžného obchodního styku při provozu závodu Zmocnitele.



Zmocněnec je oprávněn vykonávat veškeré úkony s výše uvedeným související, zejména přijímat doručované písemnosti, podávat návrhy a žádosti, účastnit se jednání s třetími stranami atd.

Tato plná moc se uděluje na dobu určitou od 23. 5. 2019 do 30. 5. 2020. K zániku této plné moci dojde mimo jiné ukončením pracovního poměru Zmocněnce ke Zmocniteli.

Zmocnitel je oprávněn tuto plnou moc kdykoliv odvolat.

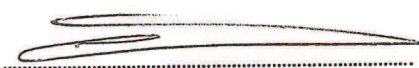
Zmocněnec není oprávněn udělit v rozsahu výše uvedeného zmocnění nebo jeho části další plnou moc.

V Brně, dne 23. 5. 2019


Zmocnitel
Zmocněnec

Výše uvedené zmocnění bez výhrad přijímám a současně potvrzuji, že jsem obeznámen s interními pravidly Zmocnitele, týkající se jednání společnosti a zavazuji se tato pravidla dodržovat a jsem si vědom následků plynoucích z porušení těchto pravidel.

V Brně, dne 23. 5. 2019


Martin Čuhel

**PROHLÁŠENÍ O PRAVOSTI
PODPISU NA LISTINĚ NESEPSANÉ ADVOKÁTEM**

Evidenční číslo knihy o prohlášeních o pravosti podpisu 008924/172/2019/C.

Já, níže podepsaný **Mgr. Ing. Milan Horák**, se sídlem v Cejl 37/62, 602 00 Brno, IČ: 62099850, zapsaný v seznamu advokátů České advokátní komory pod č. 13336, prohlašuji, že tuto listinu přeđe mnou vlastnoručně v 1 vyhotovení podepsal

pan **Mgr. Roman Klimus.**, nar. 11. 12. 1982, bytem Městečko 22, 691 63 Velké Němčice, jehož totožnost jsem zjistil z občanského průkazu č. 204155373.

Podepsaný advokát tímto prohlášením o pravosti podpisu nepotvrzuje správnost ani pravdivost údajů uvedených v této listině, ani její soulad s právními předpisy.

V Brně dne 23.5.2019

Advokátní kancelář
Mgr. Ing. Milan Horák, advokát
602 00 Brno, Cejl 62, IČ: 620 99 850
Mgr. Ing. Milan Horák
mob: 739 076 785, akhorak@icemail.cz

Ověřovací doložka pro vidimaci
Podle ověřovací knihy pošty: Brno 36

Poř.č.: 63600-0079-0042

Tato úplná kopie, obsahující 2 stran souhlasí doslovně
s předloženou listinou, z níž byla pořízena a tato listina je
prvopis, obsahující 2 stran.

Listina, z níž je vidimovaná listina pořízena, neobsahuje
viditelný zajišťovací prvek, jenž je součástí obsahu právního
významu této listiny.

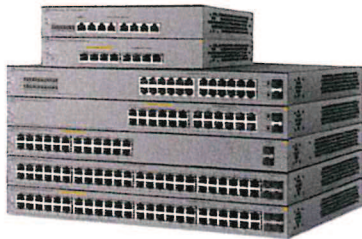
Brno 36 dne 06.09.2019
Hortová Marcela

Marcela Hortová
Podpis, Úřední razítko





HPE OfficeConnect 1920S Switch Series



Key features

- Customized operation using intuitive Web interface
- Layer 3 static routing with 32 routes for network segmentation and expansion
- Access control lists for granular security control
- Spanning Tree Protocol: STP, RSTP, and MSTP
- 8-, 24- and 48-port non-PoE+ models are fanless for quiet operation
- HPE Limited Lifetime Warranty

Product overview

The HPE OfficeConnect 1920S Switch Series consists of advanced smart-managed fixed-configuration Gigabit switches designed for small businesses in an easy-to-administer solution.

The series consists of seven switches including 8-, 24- and 48-port Gigabit Ethernet switches and 8-, 24- and 48-port PoE+ models of which half the ports are POE+ capable. An additional 24-port PoE+ model is available that provides PoE+ on all 24-ports. All ports provide non-blocking Gigabit performance. Some models include SFP ports for fiber connectivity and the 8-, 24- and 48-port non PoE+ models are fanless, making them ideal for office deployments. All HPE OfficeConnect 1920S Switches support flexible installation options, including mounting on wall, under table, or on desktop. The 8-port Gigabit Ethernet model can be powered by an upstream Power over Ethernet switch for environments where no line power is available.

The series is part of the OfficeConnect portfolio of Hewlett Packard Enterprise small business networking products. These switches provide a great value, and includes features to satisfy even the most advanced small business networks. Customizable features include basic Layer 2 features like VLANs and link aggregation, as well as advanced features such as Layer 3 static routing, IPv4 and IPv6 Host mode, ACLs, and Spanning Tree Protocols. HPE OfficeConnect 1920S Switch Series includes a Limited Lifetime Warranty. This warranty provides advance hardware replacement with next business day shipment in most countries, limited 24x7 telephone support available from HPE for the first 90 days, and limited electronic and business hours telephone support is available from HPE for the entire warranty period.

Features and benefits

Management

Simple Web management

Allows for easy management of the switch—even by nontechnical users—through an intuitive Web GUI; supports HTTP and HTTP Secure (HTTPS).

SNMPv1, v2c, and v3

Facilitate 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.

Port mirroring

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

Dual flash images

Provide independent primary and secondary operating system files for backup while upgrading.

Network Time Protocol (NTP)

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

Manual network time configuration

Manually set the date and time on the switch in the absence of an NTP server.

Default DHCP client mode

Allows the switch to be directly connected to a network, enabling plug-and-play operation; in absence of a DHCP server on the network, the switch falls back to the static address 192.168.1.1

FTP and TFTP

Provides different mechanisms for configuration updates; FTP allows bidirectional transfers over a TCP/IP network; trivial FTP (TFTP) is a simpler method using user Datagram Protocol (UDP).

Remote monitoring (RMON)

Remote monitoring (RMON) provides advanced monitoring and reporting capabilities for statistics, history, alarms and events. RMON data is retrieved from the switch through a network management platform over SNMP.

Quality of service (QoS)**Traffic prioritization**

Provides time-sensitive packets (like VoIP and video) with priority over other traffic based on DSCP or IEEE 802.1p classification.

IEEE 802.1p/Q VLAN tagging

Delivers data to devices based on the priority and type of traffic; supports IEEE 802.1Q.

Advanced classifier based QoS

Classifies traffic using multiple match criteria based on Layer 2, 3, and 4 information.

Packet storm protection

Protects against unknown unicast, broadcast and multicast storms with user-defined thresholds.

Rate limiting

Sets per-port ingress enforced maximum or percent minimum bandwidth per queue.

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 or source port.

Powerful QoS feature

Supports the following congestion actions: strict priority queuing (SP) or weighted round robin (WRR) queuing. SP and WRR queuing can be configured on individual switch ports.

Connectivity**IPv6 host**

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

IEEE 802.3X Flow Control

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

IEEE 802.3at Power over Ethernet (PoE+)

Provides up to 30 W per port, which allows support of the latest PoE+ capable devices such as Video IP phones, wireless access points, and advanced pan/tilt/zoom security cameras, as well as any 15.4 W IEEE 802.3af-compliant end device; mitigates the cost of additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments.

PoE+ port availability

Ports 1–4 are PoE/PoE+ capable on the HPE OfficeConnect 1920S 8G PPOE+ 65W switch; ports 1–12 are PoE/PoE+ capable on the HPE OfficeConnect 1920S 24G 2SFP PPOE+ 185W switch; all ports provide PoE/PoE+ on the HPE OfficeConnect 1920S 24G 2SFP PoE+ 370W switch; ports 1–24 are PoE/PoE+ capable on the HPE OfficeConnect 1920S 48G 4SFP PPOE+ 370W switch.

Auto-PoE power configuration

The switch automatically assigns the required power to a port for a PD device based on Link Layer Discovery Protocol (LLDP). Optionally, the switch permits manual, per port, PoE power configuration.

PoE shut down mode

A PoE scheduler provides the ability to define the hours of PoE power being supplied to a group of switch ports based on a 24-hour day. The scheduler enables the flexibility to select individual days of a week as well as reoccurrence on a weekly basis with a start and end date.

PoE power allocation

Support multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user-specified) to allocate PoE power for more efficient energy savings.

SFP ports for fiber connectivity

Provides fiber connections for uplinks and other connections across longer distances than copper cabling can support; SFP ports are in addition to available copper Ethernet ports, providing a higher total number of available ports. Two SFP ports available on 24 and four SFP ports on 48 port models.

Loop protection

If the switch detects a loop, it disables the source port from forwarding data packets originating from the switch to avoid broadcast storms.

Auto MDI/MDI-X

Adjusts automatically for straight-through or crossover cables on all 10/100/1000 ports.

Energy Efficient Ethernet (EEE)

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

Auto-port shut down

The switch saves power by automatically shutting down power to inactive ports. Power is restored on a port upon link detection.

Energy savings status

The switch provides an estimated cumulative energy savings due to green Ethernet features being enabled.

Energy-efficient cooling

Includes variable speed fans operating only at the speed necessary to maintain operating temperature to reduce excess noise and power consumption by the switch.

Security**Access Control Lists (ACLs)**

Enables network traffic filtering by creating an ACL, add rules and match criteria to an ACL, and apply the ACL to permit or deny on one or more interfaces or a VLAN. Up to 50 inbound entries may be configured based on IPv4 source and destination IP and MAC address, Layer 4 ports and protocol type of the IPv4 packet.

RADIUS

The switch support RADIUS authentication and configuration of up to 8 RADIUS servers.

RADIUS Accounting

A robust set of attributes and statistics are available for collecting information from the switch.

IEEE 802.1X access control

Authentication of network users on a per port basis prior to permitting network access. Port VLAN includes RADIUS VLAN assignment, dynamic VLAN creation, guest VLAN or into an unauthenticated VLAN.

Switch 802.1X supplicant

Enables the switch to authenticate itself to a RADIUS server.

Port isolation

Ports in a port isolation group are restricted from forwarding Layer 2 traffic between ports in that group; provides data privacy and security.

Automatic denial-of-service protection

Monitors for malicious attacks and protects the network by blocking the attacks.

Management password

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

Secure Sockets Layer (SSL)

Encrypts all HTTP traffic, secure access to the browser-based management of the switch.

Performance

Half-and 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 snooping

Improves network performance through multicast filtering, instead of flooding traffic on all ports.

SFP fiber uplinks

Provides greater distance connectivity using Gigabit Ethernet fiber uplinks.

Layer 2 switching**Spanning Tree Protocol (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

Drops BPDU packets when STP is enabled globally but disabled on a specific port

Jumbo frame support

Supports up to 9216 bytes frame size to improve the performance of large data transfers.

VLAN support and tagging

Support for IEEE 802.1Q; 256 VLANs with a VLAN ID range of 2-4093.

Layer 3 services**Address Resolution Protocol (ARP)**

Displays the MAC address of another IP host in the same subnet; supports static ARPs; 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 routing**

Provides basic routing supporting up to 32 static routes to allow manual routing configuration.

Link aggregation

Groups together multiple ports up to a maximum of eight ports per trunk either automatically using Link Aggregation Control Protocol (LACP), or manually, to form an ultra-high-bandwidth connection to the network backbone; help prevent traffic bottlenecks. The 8 port models support 4 trunks, 16 and 24 port models support 8 trunks, 48 port models support 16 trunks.

Convergence**LLDP-MED (Media Endpoint Discovery)**

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

Auto-voice VLAN

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

Warranty and support

This series comes with a Limited Lifetime Warranty providing advance hardware replacement with next business day shipment in most countries, 24x7 phone support available for the first 90 days, and electronic and business hours phone support for the entire warranty period. See hpe.com/networking/warrantysummary for full warranty and support information included with your product purchase.

HPE 1920S Switch Series



Specifications	HPE OfficeConnect 1920S 8G Switch (JL380A)	HPE OfficeConnect 1920S 8G PPoE+ 65W Switch (JL383A)	HPE OfficeConnect 1920S 24G 2SFP Switch (JL381A)
I/O ports and slots	8 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	4 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 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	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); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)
Physical characteristics			
Dimensions	10(w) x 6.28(d) x 1.73(h) in (25.4 x 15.95 x 4.39 cm) (1U height)	10(w) x 6.28(d) x 1.73(h) in (25.4 x 15.95 x 4.39 cm) (1U height)	17.42(w) x 9.69(d) x 1.73(h) in (44.25 x 24.61 x 4.39 cm) (1U height)
Weight	1.81 lb (0.82 kg)	2.01 lb (0.91 kg)	6 lb (2.72 kg)
Memory and processor	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB
Mounting and enclosure			Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)
Performance			
100 Mb Latency	< 7µs	< 7µs	< 7µs
1000 Mb Latency	< 2.4µs	< 2.3µs	< 2µs
Throughput	Up to 11.9 Mpps (64-byte packets)	Up to 11.9 Mpps (64-byte packets)	Up to 38.6 Mpps (64-byte packets)
Routing/Switching capacity	16 Gbps	16 Gbps	52 Gbps
Routing table size	32 entries	32 entries	32 entries
MAC address table size	8000 entries	8000 entries	8000 entries
Reliability			
MTBF (years)	144.9	112.4	80.0
Environment			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	15% to 95%, noncondensing @ 104°F (40°C)	15% to 95%, noncondensing @ 104°F (40°C)	15% to 95%, noncondensing @ 104°F (40°C)
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 @ 140°F (60°C)	15% to 95%, noncondensing @ 140°F (60°C)	15% to 95%, noncondensing @ 140°F (60°C)
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Pressure: 0 dB No Fan	Pressure: 0 dB No Fan	Pressure: 0 dB No Fan
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
AC voltage	100 - 240 VAC	100 - 240 VAC	100 - 127/200 - 240 VAC
Current	.2 A	.9 A	.5/3 A
Maximum power rating	9.5 W	72.9 W	15.7 W
Idle power	8.2 W	9.7 W	11.6 W
PoE power		65 W PoE+	
Notes:	Maximum power rating is the worst-case theoretical maximum value provided for planning the infrastructure with 100% traffic, all ports plugged in.	Maximum power rating is the worst-case theoretical maximum value for planning the infrastructure with fully loaded PoE, 100% traffic and all ports plugged in.	Maximum power rating is the worst-case theoretical maximum value provided for planning the infrastructure with 100% traffic, all ports plugged in.

HPE 1920S Switch Series (continued)

Specifications	HPE OfficeConnect 1920S 8G Switch (JL380A)	HPE OfficeConnect 1920S 8G PPoE+ 65W Switch (JL383A)	HPE OfficeConnect 1920S 24G 2SFP Switch (JL381A)
Safety	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1
Emissions	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32
Immunity			
Generic	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	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management	Web browser; SNMP Manager	Web browser; SNMP Manager	Web browser; SNMP Manager
Notes			Use only supported genuine HPE mini-GBICs with your switch.
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 1920S Switch Series



Specifications	HPE OfficeConnect 1920S 24G 2SFP PoE+ 185W Switch (JL384A)	HPE OfficeConnect 1920S 24G 2SFP PoE+ 370W Switch (JL385A)	HPE OfficeConnect 1920S 48G 4SFP Switch (JL382A)
I/O ports and slots	12 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 12 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 2 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)	24 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)	48 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 4 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)
Physical characteristics			
Dimensions	17.42(w) x 9.69(d) x 1.73(h) in (44.25 x 24.61 x 4.39 cm) (1U height)	17.42(w) x 12.7(d) x 1.73(h) in (44.25 x 32.26 x 4.39 cm) (1U height)	17.42(w) x 9.69(d) x 1.73(h) in (44.25 x 24.61 x 4.39 cm) (1U height)
Weight	7.3 lb (3.31 kg)	9.7 lb (4.4 kg)	7.3 lb (3.31 kg)
Memory and processor	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB	ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB
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	< 7µs	< 7µs	< 7µs
1000 Mb Latency	< 2µs	< 2µs	< 2µs
Throughput	Up to 38.6 Mpps (64-byte packets)	Up to 77.3 Mpps (64-byte packets)	Up to 77.3 Mpps (64-byte packets)
Routing/Switching capacity	52 Gbps	52 Gbps	104 Gbps
Routing table size	32 entries	32 entries	32 entries
MAC address table size	8000 entries	16000 entries	16000 entries
Reliability			
MTBF (years)	64.5	57.1	61.7
Environment			
Operating temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Operating relative humidity	15% to 95%, noncondensing @ 104°F (40°C)	15% to 95%, noncondensing @ 104°F (40°C)	15% to 95%, noncondensing @ 104°F (40°C)
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 @ 140°F (60°C)	15% to 95%, noncondensing @ 140°F (60°C)	15% to 95%, noncondensing @ 140°F (60°C)
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 36 dB	Power: 45 dB	Pressure: 0 dB No Fan
Electrical characteristics			
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
AC voltage	100 - 127/200 - 240 VAC	100 - 127/200 - 240 VAC	100 - 127/200 - 240 VAC
Current	2.6/1.3 A	3.5/1.9 A	.8/5 A
Maximum power rating	207.9 W	435 W	32.2 W
Idle power	19 W	34.2 W	23.3 W
PoE power	185 W PoE+	370 W PoE+	
Notes:	Maximum power rating is the worst-case theoretical maximum value provided for planning the infrastructure with 100% traffic, all ports plugged in.	Maximum power rating is the worst-case theoretical maximum value for planning the infrastructure with fully loaded PoE, 100% traffic and all ports plugged in.	Maximum power rating is the worst-case theoretical maximum value for planning the infrastructure with 100% traffic and all ports plugged in.

HPE OfficeConnect 1920S Switch Series (continued)

Specifications	HPE OfficeConnect 1920S 8G Switch (JL380A)	HPE OfficeConnect 1920S 8G PPoE+ 65W Switch (JL383A)	HPE OfficeConnect 1920S 24G 2SFP Switch (JL381A)
Safety	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1	UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; EN 60825-1
Emissions	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32	VCCI Class A; CNS 13438; ICES-003 Issue 5 Class A; FCC CFR 47 Part 15, Class A; EN 55032: 2015/CISPR-32
Immunity			
Generic	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	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management	Web browser; SNMP Manager	Web browser; SNMP Manager	Web browser; SNMP Manager
Notes	Use only supported genuine HPE mini-GBICs with your switch.	Use only supported genuine HPE mini-GBICs with your switch.	Use only supported genuine HPE mini-GBICs with your switch.
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 1920S Switch Series (continued)



Specifications

HPE OfficeConnect 1920S 48G 4SFP PPoE+ 370W Switch (JL386A)

I/O ports and slots

24 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
4 SFP 100/1000 Mbps slots (IEEE 802.3u Type 100BASE-FX, IEEE 802.3z Type 1000BASE-X)
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); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
4 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)

Physical characteristics

Dimensions 17.42(w) x 12.7(d) x 1.73(h) in
(44.25 x 32.26 x 4.39 cm) (1U height)
Weight 9.7 lb (4.4 kg)

Memory and processor

ARM Cortex-A9 @ 400 MHz, 256 MB SDRAM, 64 MB flash; packet buffer: 1.5 MB

Mounting and enclosure

Mounts in an EIA standard 19-inch telco rack or equipment cabinet (hardware included)

Performance

100 Mb Latency < 7µs
1000 Mb Latency < 2µs
Throughput Up to 77.3 Mpps (64-byte packets)
Routing/Switching capacity 104 Gbps
Routing table size 32 entries
MAC address table size 16000 entries

Reliability

MTBF (years) 45

Environment

Operating temperature 32°F to 104°F (0°C to 40°C)
Operating relative humidity 15% to 95%, noncondensing @ 104°F (40°C)
Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity 15% to 95%, noncondensing @ 140°F (60°C)
Altitude up to 10,000 ft (3 km)
Acoustic Power: 45 dB

HPE OfficeConnect 1920S Switch Series (continued)

Specifications

HPE OfficeConnect 1920S 48G 4SFP PPoE+ 370W Switch (JL386A)

Electrical characteristics

Frequency	50/60 Hz
AC voltage	100 - 127/200 - 240 VAC
Current	5.1/2.6 A
Maximum power rating	481 W
Idle power	54.8 W
PoE power	370 W PoE+

Notes:

Maximum power rating is the worst-case theoretical maximum value provided for planning the infrastructure with 100% traffic, all ports plugged in.

Safety

UL 60950-1; IEC 60950-1; EN 60950-1;
CAN/CSA-C22.2 No. 60950-1;
EN 60825-1

Emissions

VCCI Class A; CNS 13438; ICES-003
Issue 5; Class A; FCC CFR 47 Part 15,
Class A; EN 55032: 2015/CISPR-32

Immunity

Generic	EN 55024, CISPR 24
EN	EN 55024, CISPR 24
ESD	IEC 61000-4-2
Radiated	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4
Surge	IEC 61000-4-5
Conducted	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11
Harmonics	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3

Management

Web browser; SNMP Manager

Notes

Use only supported genuine
HPE mini-GBICs with your switch.

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.

Standards and Protocols

(Applies to all products in series)

Device management	RFC 2819 RMON	Web UI
<hr/>		
General protocols	IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s (MSTP) IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3x Flow Control IEEE 802.3 Type 10BASE-T IEEE 802.3i 10BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3z 1000BASE-X	
<hr/>		
MIBs	HC-ALARM-MIB SNMP-FRAMEWORK-MIB SNMP-NOTIFICATION-MIB SNMP-USER-BASED-SM-MIB SR-AGENT-INFO-MIB BRIDGE-MIB (IEEE 802.1Q) Q-BRIDGE-MIB (RFC 2674) LLDP-MIB (IEEE 802.3AB) LLDP-EXT-MED-MIB LAG-MIB (IEEE 802.3ad) RADIUS-ACC-CLIENT-MIB EtherLike-MIB IF-MIB (RFC 2863) RFC1213-MIB II Power Ethernet MIB (RFC3621)	
<hr/>		
QoS/CoS	IEEE 802.1P (CoS)	
<hr/>		
Security	IEEE 802.1X Port Based Network Access Control	

HPE OfficeConnect 1920S Switch Series accessories

Transceivers	HPE X121 1G SFP LC SX Transceiver (J4858C)
	HPE X121 1G SFP LC LX Transceiver (J4859C)
	HPE X121 1G SFP RJ45 T Transceiver (J8177C)
	HPE X111 100M SFP LC FX Transceiver (J9054C)
Cables	HPE 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
	HPE 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
	HPE 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
	HPE 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
	HPE 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
	HPE 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
	HPE 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)
	HPE Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)

Learn more at
hpe.com/networking

Data sheet



Sign up for updates

★ Rate this document



**Hewlett Packard
Enterprise**

© Copyright 2017 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

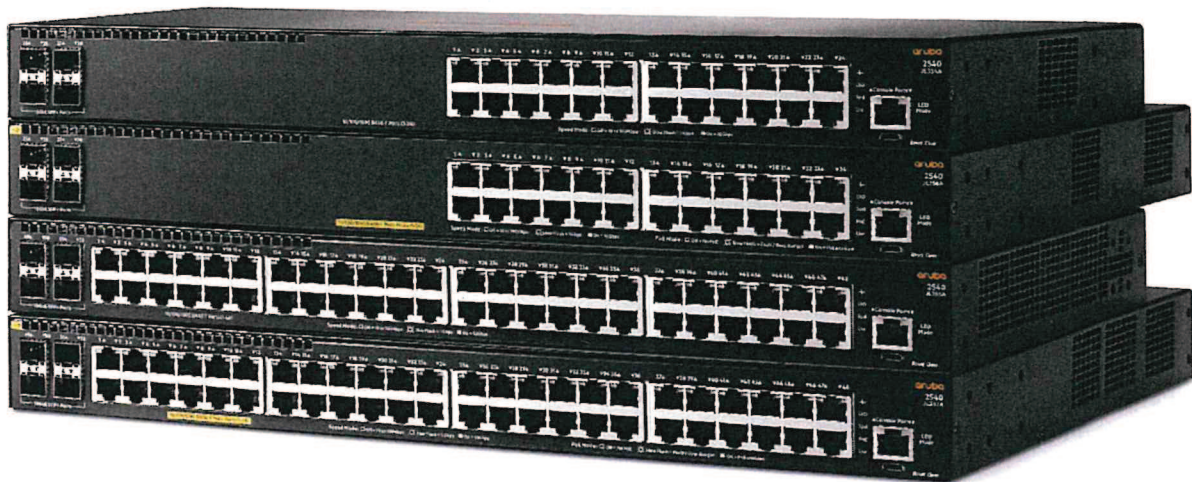
a00002986enw, May 2017, Rev. 1

Overview

Aruba 2540 Switch Series

Designed for the digital workplace, the Aruba 2540 Switch Series is optimized for today's mobile and IoT needs. The switches are easy to deploy, use and manage using Aruba AirWave or Aruba Central. Aruba ClearPass offers centralized security and external captive portal support.

The Aruba 2540 Switch Series provides a convenient and cost-effective wired access solution that can be quickly set up with Zero Touch Provisioning. PoE+ models deliver power across all access ports for wireless APs, security cameras and other IoT devices. The 2540 has wire speed backhaul bandwidth capacity with built-in 10GbE uplinks, robust QoS, static & RIP routing, IPv6 and includes a limited lifetime warranty with no software licensing required.



Models

Aruba 2540 24G 4SFP+ Switch	JL354A
Aruba 2540 48G 4SFP+ Switch	JL355A
Aruba 2540 24G PoE+ 4SFP+ Switch	JL356A
Aruba 2540 48G PoE+ 4SFP+ Switch	JL357A

Key Features

- Aruba Layer 2 switch series with Static and RIP routing, ACLs and robust QoS
- Security and network management via Aruba ClearPass Policy Manager, Aruba AirWave and Aruba Central
- Simple deployment with Zero Touch Provisioning
- Convenient 10GbE uplinks and up to 370W PoE+
- Software-defined ready with REST APIs

Standard Features

Enhanced Features

Unified Wired and Wireless

- **Software-defined networks**
supports REST APIs to enable automation of network operations, monitoring, and troubleshooting
- **Supports unified wired and wireless policies**
using Aruba ClearPass Policy Manager
- **Switch auto-configuration**
automatically configures switch for different settings such as VLAN, CoS, PoE max power, and PoE priority when an Aruba access point is detected
- **User role**
defines a set of switch-based policies in areas such as security, authentication, and QoS. A user role can be assigned to a group of users or devices, using switch-based local user role or download from ClearPass
- **Static IP Visibility**
provides a way for ClearPass to do accounting for clients with static IP address

Quality of Service (QoS)

- **Traffic prioritization (IEEE 802.1p)**
allows real-time traffic classification into eight priority levels mapped to eight queues
- **Layer 4 prioritization**
based on TCP/UDP port numbers
- **Class of Service (CoS)**
sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ
- **Rate limiting**
sets per-port ingress enforced maximums and per-port, per-queue minimums
- **Large buffers**
Provide graceful congestion management

Connectivity

- **Flexible 10 Gb/s Ethernet connectivity**
four fixed 10 Gigabit ports (SFP+)
- **Auto-MDIX**
provides automatic adjustments for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **IEEE 802.3at Power over Ethernet (PoE+)**
provides up to 30 W per port that allows 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; eliminates 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
- **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 RIPng protocols
 - **Security**
provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown, and ND snooping

Standard Features

Performance and efficiency

- **Energy-efficient design delivers power savings**
 - **80 PLUS Silver Certified power supply:**
increases efficiency and savings
 - **Energy-efficient Ethernet (EEE) support**
reduces power consumption in accordance with IEEE 802.3az
- **Designed with the latest Aruba ProVision ASIC**
provides very low latency, increased packet buffering, and adaptive power consumption
- **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

Convergence

- **IP multicast snooping and IGMP**
automatically prevent flooding of IP multicast traffic
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**
facilitates easy mapping using network management applications with LLDP automated device discovery protocol
- **LLDP-MED (Media Endpoint Discovery)**
defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to configure automatically network devices such as IP phones
- **PoE and PoE+ allocations**
support multiple methods (automatic, IEEE 802.3at dynamic, LLDP-MED fine grain, IEEE 802.3af device class, or user-specified) to allocate and manage PoE/PoE+ power for more efficient energy savings
- **Local MAC Authentication**
assigns attributes such as VLAN and QoS using locally configured profile that can be a list of MAC prefixes

Resiliency and high availability

- **IEEE 802.1s Multiple Spanning Tree**
provides high link availability by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w
- **IEEE 802.3ad link-aggregation-control protocol (LACP) and port trunking**
support up to 26 static or dynamic trunks with each trunk having up to eight links (ports) per static trunk
- **SmartLink**
provides easy-to-configure link redundancy of active and standby links

Simplified configuration and management

- **SNMPv1, v2, and v3**
provide complete support of SNMP; support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **Zero-Touch ProVisioning (ZTP)**
simplifies installation of the switch using Aruba Activate or a DHCP-based process with AirWave Network Management
- **Flexible management with same hardware**
supports both cloud-based Central and on-premise AirWave without ripping and replacing switching infrastructure
- **Aruba Central support**
cloud based management platform offers simple, secure, and cost effective way to manage switches

Standard Features

Manageability

- **Dual flash images**
provide independent primary and secondary operating system files for backup while upgrading
- **Friendly port names**
allow assignment of descriptive names to ports
- **Find-Fix-Inform**
finds and fixes common network problems automatically, then informs administrator
- **Multiple configuration files**
allow multiple configuration files to be stored to a flash image
- **Software updates**
free downloads from the Web
- **RMON, XRMON, and sFlow**
provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Troubleshooting**
ingress and egress port monitoring enable more efficient problem solving
- **Uni-Directional 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
- **IP SLA for voice**
monitor quality of voice traffic using the UDP Jitter and UDP Jitter for VoIP tests.

Layer 2 switching

- **Jumbo packet support**
improves the performance of large data transfers; supports frame size of up to 9220 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 to improve link bandwidth usage; is compatible with PVST+
- **GVRP and MVRP**
allows automatic learning and dynamic assignment of VLANs
- **VLAN support and tagging**
supports IEEE 802.1Q (4094 VLAN IDs) and 512 VLANs simultaneously

Layer 3 services

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

Layer 3 routing

- **Static IP routing**
provides manually configured routing; includes ECMP capability
- **256 static and 2,000 RIP route**
facilitate segregation of user data, without adding external hardware
- **Routing Information Protocol (RIP)**
provides RIPv1, RIPv2, and RIPv3 routing

Standard Features

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
 - Supports MAC-based authentication
 - using MAC address
- **Authentication flexibility**
 - Multiple IEEE 802.1X users per port
 - provides authentication of multiple devices on a single port; prevents a user from "piggybacking" on another user's IEEE 802.1X authentication
 - Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port
 - switch port will accept up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- **Access control lists (ACLs)**
 - provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Source-port filtering**
 - allows only specified ports to communicate with each other
- **RADIUS/TACACS+**
 - eases switch management security administration by using a password authentication server
- **Secure shell**
 - encrypts all transmitted data for secure remote CLI access over IP networks
- **Secure Sockets Layer (SSL)**
 - encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- **Port security**
 - allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **MAC address lockout**
 - prevents particular configured MAC addresses from connecting to the network
- **Secure FTP**
 - allows secure file transfer to and from the switch; 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
- **STP BPDU port protection**
 - blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- **DHCP protection**
 - blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Dynamic ARP protection**
 - blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **Dynamic IP lockdown**
 - works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing
- **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

Standard Features

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**
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 Information

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.

Aruba 2540 24G 4SFP+ Switch	JL354A
<ul style="list-style-type: none"> 24 RJ-45 autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3
PDU Cable NA/MEX/TW/JP	JL354A #B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL354A #B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL354A #B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL354A #AC3
<ul style="list-style-type: none"> No Localized Power Cord Selected 	
Aruba 2540 48G 4SFP+ Switch	JL355A
<ul style="list-style-type: none"> 48 RJ-45 autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3
PDU Cable NA/MEX/TW/JP	JL355A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL355A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL355A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL355A#AC3
<ul style="list-style-type: none"> No Localized Power Cord Selected 	
Aruba 2540 24G PoE+ 4SFP+ Switch	JL356A
<ul style="list-style-type: none"> 24 RJ-45 PoE+ autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3
PDU Cable NA/MEX/TW/JP	JL356A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL356A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL356A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL356A#AC3
Aruba 2540 48G PoE+ 4SFP+ Switch	JL357A
<ul style="list-style-type: none"> 24 RJ-45 PoE+ autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3
PDU Cable NA/MEX/TW/JP	JL357A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	

Configuration

PDU CABLE ROW	JL357A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL357A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL357A#AC3

Configuration Rules

RULE 1 The following Transceivers install into this Module Switch:

Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D
Aruba 100M SFP LC FX 2km MMF Transceiver	J9054D

RULE 2 The following Transceivers install into this Switch (Use #0D1 quoted to switch if switch is CTO) - if applicable:

Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
Aruba 10G SFP+ LC LR 10km SMF Transceiver	J9151E
Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D

Rack Level Integration CTO Models

Aruba 2540 24G 4SFP+ Switch	JL354A
<ul style="list-style-type: none"> 24 RJ-45 autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3, 4, 5
PDU Cable NA/MEX/TW/JP	JL354A #B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL354A #B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL354A #B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL354A #AC3
<ul style="list-style-type: none"> No Localized Power Cord Selected 	
Aruba 2540 48G 4SFP+ Switch	JL355A
<ul style="list-style-type: none"> 48 RJ-45 autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3, 4, 5
PDU Cable NA/MEX/TW/JP	JL355A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL355A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL355A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL355A#AC3
<ul style="list-style-type: none"> No Localized Power Cord Selected 	

Configuration

Aruba 2540 24G PoE+ 4SFP+ Switch	JL356A
<ul style="list-style-type: none"> 24 RJ-45 PoE+ autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3, 4, 5
PDU Cable NA/MEX/TW/JP	JL356A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL356A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL356A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL356A#AC3
Aruba 2540 48G PoE+ 4SFP+ Switch	JL357A
<ul style="list-style-type: none"> 24 RJ-45 PoE+ autosensing 10/100/1000 ports 4 SFP/SFP+ 1G/10G ports min=0 \\ max=4 SFP/SFP+ Transceivers 1U - Height 	See Configuration RULE: 1, 2, 3, 4, 5
PDU Cable NA/MEX/TW/JP	JL357A#B2B
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
PDU CABLE ROW	JL357A#B2C
<ul style="list-style-type: none"> HPE 2M C14 to C13 Power Cord (J9959A) 	
High Volt Switch to Wall Power Cord	JL357A#B2E
<ul style="list-style-type: none"> HPE 2.3M C13 to NEMA L6-20P Power Cord(J9936A) 	
No Power Cord	JL357A#AC3
Configuration Rules	
RULE: 1	The following Transceivers install into this Switch (Use #0D1 quoted to switch if switch is CTO) - if applicable
	Aruba 1G SFP LC SX 500m OM2 MMF Transceiver J4858D
	Aruba 1G SFP LC LX 10km SMF Transceiver J4859D
	Aruba 1G SFP LC LH 70km SMF Transceiver J4860D
	Aruba 1G SFP RJ45 T 100m Cat5e Transceiver J8177D
	Aruba 100M SFP LC FX 2km MMF Transceiver J9054D
RULE: 2	The following Transceivers install into this Switch (Use #0D1 quoted to switch if switch is CTO) - if applicable :
	Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver J9150D
	Aruba 10G SFP+ LC LR 10km SMF Transceiver J9151E
	Aruba 10G SFP+ LC ER 40km SMF Transceiver J9153D
	Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable J9281D
	Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable J9283D
RULE: 3	If this switch is factory installed in HPE Racks, Then the J9583A#0D1 is required. CLIC Only - Allow the J9583AZ in all regions.
RULE: 4	Localization required on orders without #B2B, #B2C, #B2E options.
RULE: 5	If this Switch Chassis is selected for Rack Level Integration, Then the Switch Chassis needs to integrate (with #0D1) to the HPE Rack.
Remarks	Drop down under power supply should offer the following options and results: Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO) Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO) No Power Cord - #AC3

Configuration

Transceivers

SFP Transceivers

Aruba 100M SFP LC FX 2km MMF Transceiver	J9054D
Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D

SFP+ Transceivers

Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
HPE 8Gb LW 10km FC SFP+ 1 Pk Transceiver	J9151E
Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D

Remarks OCA Blue **NOTE:** No Support for 10G LRM (J9152D) and no support for 10G 7M DAC (J9285D)

Cables

Console Cables

NOTE: (std 0 // max 99) User Selection (min 0 // max 99) per switch

Aruba X2C2 RJ45 to DB9 Console Cable	JL448A
--------------------------------------	--------

Switch Enclosure Options

Mounting Kit

NOTE: (std 0 // max 1) User Selection (min 0 // max 1) per switch

HPE X410 1U Universal 4-post Rackmount Kit	J9583A
--	--------

See Configuration

RULE: 1

Configuration Rules

RULE: 1 If this Mounting Kit is order with #0D1 then it integrates to the HPE Universal Rack. (not the switch)

Technical Specifications

Aruba 2540 24G 4SFP+ Switch (JL354A)

I/O ports and slots	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); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 SFP+ 1/10GbE ports; PHY-less		
Additional ports and slots	1 dual-personality (RJ-45 or USB micro-B) serial console port		
Physical characteristics	Dimensions	17.42(w) x 7.88(d) x 1.73(h) in (44.25 x 20.02 x 4.39 cm) (1U height)	
	Weight	5.31 lb (2.41 kg)	
Memory and processor	Dual Core ARM Coretex A9 @ 1016 MHz, 1 GB DDR3 SDRAM; Packet buffer size: 12.38 MB 4.5MB Ingress/7.875MB Egress, 4 GB eMMC		
Performance	1000 Mb Latency	< 3.8 μs (64-byte packets)	
	10 Gbps Latency	< 1.6 μs (64-byte packets)	
	Throughput	up to 95.2 Mpps	
	Switching capacity	128 Gbps	
	Routing table size	2000 entries (IPv4), 1000 entries (IPv6)	
	MAC address table size	16384 entries	
Environment	Operating temperature	32°F to 113°F (0°C to 45°C); up to 5000 Feet, - 0C to 40C (32F to 104F) up to 10000 Feet	
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C); up to 15000 Feet	
	Non-operating/Storage relative humidity	15% to 95% @ 149°F (65°C)	
	Acoustic	Power: 49.7 dB, Pressure: 37.1 dB	
	Airflow direction	Side-to-side	
Electrical characteristics	Frequency	50/60 Hz	
	Maximum heat dissipation	100 BTU/hr (105.5 kJ/hr)	
	Voltage	100 - 127 / 200 - 240 VAC, rated	
	Current	0.6/0.4 A	
	Maximum power rating	29.3 W	
	Idle power	19.5 W	
	NOTES	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated	
	Safety	UL 60950-1 2nd Edition; EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013; IEC 60950-1:2005 +A1:2009 +A2:2013; CSA 22.2 No. 60950-1-07 2nd; EN 60825-1:2007 / IEC 60825-1:2007 Class 1	
Emissions	VCCI Class A; CNS 13438; ICES-003 Class A; FCC CFR 47 Part 15, Class A ; EN 55022: 2010/CISPR-22, Class A		

Technical Specifications

Immunity	Generic	EN 55024:2010/CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	Aruba AirWave Network Management; IMC - Intelligent Management Center; Command-line interface; Web browser; Configuration menu; SNMP manager; Telnet; RMON1; FTP; Out-of-band management (serial RS-232C or micro USB)	
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.	

Aruba 2540 48G 4SFP+ Switch (JL355A)

I/O ports and slots	48 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 4 SFP+ 1/10GbE ports; PHY-less	
Additional ports and slots	1 dual-personality (RJ-45 or USB micro-B) serial console port	
Physical characteristics	Dimensions	17.42(w) x 9.7(d) x 1.73(h) in (44.25 x 24.63 x 4.39 cm) (1U height)
	Weight	6.83 lb (3.10 kg)
	Memory and processor	Dual Core ARM Cortex A9 @ 1016 MHz, 1 GB DDR3 SDRAM; Packet buffer size: 12.38 GB 4.5MB Ingress/7.875MB Egress, 4 GB eMMC
Performance	1000 Mb Latency	< 3.8 μ s (64-byte packets)
	10 Gbps Latency	< 1.6 μ s (64-byte packets)
	Throughput	up to 112.0 Mpps
	Switching capacity	176 Gbps
	Routing table size	2000 entries (IPv4), 1000 entries (IPv6)
	MAC address table size	16384 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C); up to 5000 Feet, -0C to 40C (32F to 104F) up to 10000 Feet
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C); up to 15000 Feet
	Non-operating/Storage relative humidity	15% to 95% @ 149°F (65°C)
	Acoustic	Power: 54.1 dB, Pressure: 40.2 dB
	Airflow direction	Side-to-side

Technical Specifications

Electrical characteristics	Frequency	50/60 Hz
	Maximum heat dissipation	159 BTU/hr (167.74 kJ/hr)
	Voltage	100 - 127 / 200 - 240 VAC, rated
	Current	0.9/0.6 A
	Maximum power rating	46.6 W
	Idle power	32.7 W
	NOTES	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated
Safety	UL 60950-1 2nd Edition; EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013; IEC 60950-1:2005 +A1:2009 +A2:2013; CSA 22.2 No. 60950-1-07 2nd; EN 60825-1:2007 / IEC 60825-1:2007 Class 1	
Emissions	VCCI Class A; CNS 13438; ICES-003 Class A; FCC CFR 47 Part 15, Class A; EN 55022: 2010/CISPR-22, Class A	
Immunity	Generic	EN 55024:2010/CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	Aruba AirWave Network Management; IMC - Intelligent Management Center; Command-line interface; Web browser; Configuration menu; SNMP manager; Telnet; RMON1; FTP; Out-of-band management (serial RS-232C or micro USB)	
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.	

Aruba 2540 24G PoE+ 4SFP+ Switch (JL356A)

I/O ports and slots	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+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 SFP+ 1/10GbE ports; PHY-less	
Additional ports and slots	1 dual-personality (RJ-45 or USB micro-B) serial console port	
Physical characteristics	Dimensions	17.42(w) x 11.98(d) x 1.73(h) in (44.25 x 30.42 x 4.39 cm) (1U height)
	Weight	8.6 lb (3.9 kg)
	Memory and processor	Dual Core ARM Cortex A9 @ 1016 MHz, 1 GB DDR3 SDRAM; Packet buffer size: 12.38 MB 4.5MB Ingress/7.785 Egress, 4 GB eMMC

Technical Specifications

Performance	1000 Mb Latency	< 3.8 μ s (64-byte packets)
	10 Gbps Latency	< 1.6 μ s (64-byte packets)
	Throughput	up to 95.2 Mpps
	Switching capacity	128 Gbps
	Routing table size	2000 entries (IPv4), 1000 entries (IPv6)
	MAC address table size	16384 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C); up to 5000 Feet, -0C to 40C (32F to 104F) up to 10000 Feet
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Non-operating/ Storage temperature	-40°F to 158°F (-40°C to 70°C); up to 15000 Feet
	Non-operating/ Storage relative humidity	15% to 95% @ 149°F (65°C)
	Acoustic	Power: 54.1 dB, Pressure: 40.6 dB
	Airflow direction	Side-to-side
Electrical characteristics	Frequency	50/60 Hz
	80plus.org Certification	Silver
	Maximum heat dissipation	258.0 BTU/hr (272.2 kJ/hr)
	Voltage	100 - 127 / 200 - 240 VAC, rated
	Current	4.9/2.4 A
	Maximum power rating	445 W
	Idle power	36.8 W
	PoE power	370 W PoE+
	NOTES	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated
Safety	UL 60950-1 2nd Edition; EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013; IEC 60950-1:2005 +A1:2009 +A2:2013; CSA 22.2 No. 60950-1-07 2nd; EN 60825-1:2007 / IEC 60825-1:2007 Class 1	
Emissions	VCCI Class A; CNS 13438; ICES-003 Class A; FCC CFR 47 Part 15, Class A; EN 55022: 2010/CISPR-22, Class A	

Technical Specifications

Immunity	Generic	EN 55024:2010/CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	Aruba AirWave Network Management; IMC - Intelligent Management Center; Command-line interface; Web browser; Configuration menu; SNMP manager; Telnet; RMON1; FTP; Out-of-band management (serial RS-232C or micro USB)	
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.	

Aruba 2540 48G PoE+ 4SFP+ Switch (JL357A)

I/O ports and slots	48 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 4 SFP+ 1/10GbE ports; PHY-less	
Additional ports and slots	1 dual-personality (RJ-45 or USB micro-B) serial console port	
Physical characteristics	Dimensions	17.42(w) x 11.98(d) x 1.73(h) in (44.25 x 30.42 x 4.39 cm) (1U height)
	Weight	9.83 lb (4.46 kg)
Memory and processor	Dual Core ARM Coretex A9 @ 1016 MHz, 1 GB DDR3 SDRAM; Packet buffer size: 12.38 MB 4.5MB Ingress/7.875MB Egress, 4 GB eMMC	
Performance	1000 Mb Latency	< 3.8 μ s (64-byte packets)
	10 Gbps Latency	< 1.6 μ s (64-byte packets)
	Throughput	up to 112.0 Mpps
	Switching capacity	176 Gbps
	Routing table size	2000 entries (IPv4), 1000 entries (IPv6)
	MAC address table size	16384 entries
Environment	Operating temperature	32°F to 113°F (0°C to 45°C); up to 5000 Feet, - 0C to 40C (32F to 104F) up to 10000 Feet
	Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C); up to 15000 Feet
	Non-operating/Storage relative humidity	15% to 95% @ 149°F (65°C)
	Acoustic	Power: 55.7 dB, Pressure: 41.7 dB
	Airflow direction	Side-to-side

Technical Specifications

Electrical characteristics	Frequency	50/60 Hz
	80plus.org Certification	Silver
	Maximum heat dissipation	293.0 BTU/hr (309.1 kJ/hr)
	Voltage	100 - 127 / 200 - 240 VAC, rated
	Current	5.1/2.5 A
	Maximum power rating	459 W
	Idle power	48.6 W
	PoE power	370 W PoE+
	NOTES	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated
Safety	UL 60950-1 2nd Edition; EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013; IEC 60950-1:2005 +A1:2009 +A2:2013; CSA 22.2 No. 60950-1-07 2nd; EN 60825-1:2007 / IEC 60825-1:2007 Class 1	
Emissions	VCCI Class A; CNS 13438; ICES-003 Class A; FCC CFR 47 Part 15, Class A ; EN 55022: 2010/CISPR-22, Class A	
Immunity	Generic	EN 55024:2010/CISPR 24
	ESD	IEC 61000-4-2
	Radiated	IEC 61000-4-3
	EFT/Burst	IEC 61000-4-4
	Surge	IEC 61000-4-5
	Conducted	IEC 61000-4-6
	Power frequency magnetic field	IEC 61000-4-8
	Voltage dips and interruptions	IEC 61000-4-11
	Harmonics	EN 61000-3-2, IEC 61000-3-2
	Flicker	EN 61000-3-3, IEC 61000-3-3
Management	Aruba AirWave Network Management; IMC - Intelligent Management Center; Command-line interface; Web browser; Configuration menu; SNMP manager; Telnet; RMON1; FTP; Out-of-band management (serial RS-232C or micro USB)	
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.	

Standards and protocols (applies to all products in series)

Denial of service protection

CPU DoS Protection

Technical Specifications

Device Management

RFC 1155 Structure and Mgmt 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 (SNMP v1/2 Coexistence)
RFC 2576 (Coexistence between SNMP V1, V2, V3)
RFC 2578-2580 SMIv2
RFC 2579 (SMIv2 Text Conventions)
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
HTTP, SSHv1, and Telnet
Multiple Configuration Files
Multiple Software Images
SNMP v3 and RMON RFC support
SSHv1/SSHv2 Secure Shell
TACACS/TACACS+
Web UI

Technical Specifications

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 IGMPv2
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 3575 IANA Considerations for RADIUS
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
RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
UDLD (Uni-directional Link Detection)

Technical Specifications

IP Multicast

RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches

IPv6

RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPng for IPv6
RFC 2081 RIPng Protocol Applicability Statement
RFC 2082 RIP-2 MD5
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 for IPv6
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 Auto-configuration
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 6620 FCFS SAVI
draft-ietf-savi-mix

Technical Specifications

MIBs

IEEE 802.1ap (MSTP and STP MIB's only)
IEEE 8021-Bridge-MIB (2008)
IEEE 8021-Q-Bridge-MIB (2008)
RFC 1155 Structure & ID of Mgmt Info for TCP/IP Internets
RFC 1156 (TCP/IP MIB)
RFC 1157 A Simple Network Management Protocol (SNMP)
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 2021 RMONv2 MIB
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2579 Textual Conventions for SMIv2
RFC 2580 Conformance Statements for 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 2819 RMON MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB
RFC 2932 IP (Multicast Routing MIB)
RFC 2933 IGMP MIB
RFC 3414 SNMP-User based-SM MIB
RFC 3415 SNMP-View based-ACM MIB
RFC 3417 Simple Network Management Protocol (SNMP) over IEEE 802 Networks
RFC 3418 MIB for SNMPv3
RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)

Technical Specifications

Network Management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 1155 Structure of Management Information
RFC 1157 SNMPv1
RFC 2021 Remote Network Monitoring Management Information Base Version 2 using SMIv2
RFC 2576 Coexistence between SNMP versions
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2579 Textual Conventions for SMIv2
RFC 2580 Conformance Statements for SMIv2
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 2819 Remote Network Monitoring Management Information Base
RFC 2856 Textual Conventions for Additional High Capacity Data Types
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
RFC 3164 BSD syslog Protocol
RFC 3176 sFlow
RFC 3411 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 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
RFC 5424 Syslog Protocol
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

QoS/CoS

IEEE 802.1p (CoS)
RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2475 DiffServ Architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)
Ingress Rate Limiting

Technical Specifications

Security

IEEE 802.1X Port Based Network Access Control
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1492 An Access Control Protocol, Sometimes Called TACACS
RFC 1492 TACACS+
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2138 RADIUS Authentication
RFC 2139 RADIUS Accounting
RFC 2246 Transport Layer Security (TLS)
RFC 2548 Microsoft Vendor-specific RADIUS Attributes
RFC 2618 RADIUS Authentication Client MIB
RFC 2620 RADIUS Accounting Client MIB
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2818 HTTP Over TLS
RFC 2865 RADIUS (client only)
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
RFC 2882 NAS Requirements: Extended RADIUS Practices
RFC 3162 RADIUS and IPv6
RFC 3576 Dynamic Authorization Extensions to RADIUS
RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
RFC 3580 IEEE 802.1X RADIUS
RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines
RFC 4576 RADIUS Attributes
Access Control Lists (ACLs)
draft-grant-tacacs-02 (TACACS)
Guest VLAN for 802.1X
MAC Authentication
MAC Lockdown
MAC Lockout
Port Security
Secure Sockets Layer (SSL)
SSHv2 Secure Shell
Web Authentication

Accessories

Aruba 2540 Switch Series accessories

Transceivers

Aruba 100M SFP LC FX 2km MMF Transceiver	J9054D
Aruba 1G SFP RJ45 T 100m Cat5e Transceiver	J8177D
Aruba 1G SFP LC SX 500m OM2 MMF Transceiver	J4858D
Aruba 1G SFP LC LX 10km SMF Transceiver	J4859D
Aruba 1G SFP LC LH 70km SMF Transceiver	J4860D
Aruba 10G SFP+ LC SR 300m OM3 MMF Transceiver	J9150D
Aruba 10G SFP+ LC LR 10km SMF Transceiver	J9151E
Aruba 10G SFP+ LC ER 40km SMF Transceiver	J9153D
Aruba 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281D
Aruba 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283D

NOTE: No support for 10G LRM (J9152D) and no support for 10G 7m DAC (J9285D)

Cables

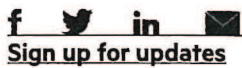
Aruba X2C2 RJ45 to DB9 Console Cable	JL448A
--------------------------------------	--------

Mounting Kit

HPE X410 1U Universal 4-post Rackmount Kit	J9583A
--	--------

Summary of Changes

Date	Version History	Action	Description of Change
04-Mar-2019	Version 10	Changed	SKU J9151D was replaced with J9151E Obsolete SKUs were removed.
10-Dec-2018	Version 9	Changed	Technical Specifications updated
03-Dec-2018	Version 8	Changed	Key Features, Product overview and Enhanced Features
02-Jul-2018	Version 7	Changed	Software feature update
05-Feb-2018	Version 6	Changed	Configuration section updated
08-Jan-2018	Version 5	Changed	Software feature update
03-Jul-2017	Version 4	Added	SKU added: JL448A
05-Jun-2017	Version 3	Changed	Minor edits made on Features and Benefits
17-Feb-2017	Version 2	Changed	Accessories updated
07-Nov-2016	Version 1	Created	Document Creation



© Copyright 2019 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

To learn more, visit: <http://www.hpe.com/networking>

c05278966 - 15731 - Worldwide - V10 - 04-March-2019

DATA SHEET

ARUBA 510 SERIES WIRELESS ACCESS POINTS

Very high Wi-Fi 6 (802.11ax) performance with dual radios and Green AP energy efficiency

Aruba Wi-Fi 6 access points provide high-performance connectivity for any organization experiencing growing numbers of IoT and mobility requirements. With a maximum aggregate data rate of 3 Gbps (HE80/HE40), they deliver the speed and reliability needed for any enterprise environment.

WI-FI 6 CERTIFIED

Aruba 510 Series APs are validated as Wi-Fi CERTIFIED 6 devices. This ensures full compatibility with Wi-Fi CERTIFIED 6 client devices and includes the latest Wi-Fi security protocols such as [WPA3](#) and [Enhanced Open](#) standards.

INCREDIBLE EFFICIENCY

The 510 Series APs are also designed to optimize user experience by maximizing Wi-Fi efficiency and dramatically reducing airtime contention between clients.

Features include Orthogonal frequency-division multiple access (OFDMA), bi-directional multi-user MIMO and cellular optimization. With up to 4 spatial streams (4SS) and 160MHz channel bandwidth (VHT160), the 510 Series provides groundbreaking wireless capabilities for any enterprise.

Read the Multi-User 802.11ax white paper for further information.

Advantages of OFDMA

This capability allows Aruba's APs to handle multiple Wi-Fi 6 capable clients on each channel simultaneously, regardless of device or traffic type. Channel utilization is optimized by handling each transaction via smaller sub-carriers or resource units (RUs), which means that clients are sharing a channel and not competing for airtime and bandwidth.

The following table highlights the number of available resources units per Wi-Fi Channel used:



KEY FEATURES

- Wi-Fi 6 Certified
- 3 Gbps of maximum throughput (HE80/HE40)
- WPA3 and Enhanced Open security
- Built-in technology that resolves sticky client issues for Wi-Fi 6 and Wi-Fi 5 devices
- OFDMA and MU-MIMO for enhanced multi-user efficiency
- IoT-ready Bluetooth 5 and Zigbee support

NUMBER OF CONCURRENT CLIENTS PER CHANNEL PER RADIO*

Prior Wi-Fi generations	1 at a time
Wi-Fi 6 in 20 MHz	Up to 9 at a time
Wi-Fi 6 in 40 MHz	Up to 18 at a time
Wi-Fi 6 in 80 MHz	Up to 37 at a time
Wi-Fi 6 in 160 MHz	Up to 74 at a time

* Client density varies based on configured network settings

Aruba AirSlice for Extended OFDMA Assurance

Initially, APs in controller-less mode (Instant) can provide SLA-grade performance by allocating RUs to specific traffic types. By combining Aruba's Policy Enforcement Firewall (PEF) and Layer 7 deep packet inspection (DPI) to identify user roles and applications, the APs will dynamically allocate the bandwidth needed. Non-Wi-Fi 6 clients can also benefit.

AirSlice for APs in controller mode will be supported in a future software release.

Multi-user MIMO (MU-MIMO)

The 510 Series APs support downlink mU-MIMO just like Wi-Fi 5 (802.11ac Wave 2) APs. The added benefit is the ability to multiply the number of clients that can now send traffic, thus optimizing client-to-AP spatial stream diversity.

Wi-Fi 6 and MU-MIMO aware client optimization

Aruba's patented AI-powered ClientMatch technology eliminates sticky client issues by placing Wi-Fi 6 capable devices on the best available AP. Session metrics are used to steer mobile devices to the best AP based on available bandwidth, types of applications being used and traffic type – even as users roam.

Aruba Advanced Cellular Coexistence (ACC)

This feature uses built-in filtering to automatically minimize the impact of interference from cellular networks, distributed antenna systems (DAS), and commercial small cell or femtocell equipment.

Intelligent Power Monitoring (IPM)

Aruba APs continuously monitor and report hardware energy consumption. They can also be configured to enable or disable capabilities based on available PoE power – ideal when wired switches have exhausted their power budget.

Green AP energy efficiency

Aruba Wi-Fi 6 APs utilize analytics from NetInsight to automatically transition in and out of a sleep mode based on client density. Learn more in the [Green AP At-A-Glance](#).

IOT PLATFORM CAPABILITIES

Like all Aruba Wi-Fi 6 APs, the 510 Series includes an integrated Bluetooth 5 and 802.15.4 radio (for Zigbee support) to simplify deploying and managing IoT-based location services, asset tracking services, security solutions and IoT sensors. This allows organizations to leverage the 510 Series as an IoT platform, which eliminates the need for an overlay infrastructure and additional IT resources.

Target Wake Time (TWT)

Ideal for IoTs that communicate infrequently, TWT establishes a schedule for when clients need to communicate with an AP. This helps improve client power savings and reduces airtime contention with other clients.

ARUBA SECURE INFRASTRUCTURE

The Aruba 510 Series includes components of Aruba's 360 Secure Fabric to help protect user authentication and wireless traffic. Select capabilities include:

WPA3 and Enhanced Open

Support for stronger encryption and authentication is provided via the latest version of WPA for enterprise protected networks.

Enhanced Open offers seamless new protection for users connecting to open networks where each session is automatically encrypted to protect user passwords and data on guest networks.

WPA2-MPSK

MPSK enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device or device type change, no additional changes are needed for other devices. Requires ClearPass Policy Manager.

VPN Tunnels

In Remote AP (RAP) and IAP-VPN deployments, the Aruba 510 Series can be used to establish a secure SSL/IPSec VPN tunnel to a Mobility Controller that is acting as a VPN concentrator.

Trusted Platform Module (TPM)

For enhanced device assurance, all Aruba APs have an installed TPM for secure storage of credentials and keys, and boot code.

SIMPLE AND SECURE ACCESS

To simplify policy enforcement, the Aruba 510 Series uses Aruba's policy enforcement firewall (PEF) feature to encapsulate all traffic from the AP to the Mobility Controller (or Gateway) for end-to-end encryption and inspection. Policies are applied based on user role, device type, applications, and location. This reduces the manual configuration of SSIDs, VLANs and ACLs. PEF also serves as the underlying technology for Aruba Dynamic Segmentation.

HIGH-DENSITY CONNECTIVITY

Each 510 Series AP provides connectivity for a maximum of 512 associated clients per radio (1024 in total). In real-world scenarios, the maximum recommended client density is dependent on environmental conditions.

Flexible operation and management

A unique feature of Aruba APs is the ability to operate in either controllerless (Instant) or controller-based mode.

Controller-less (Instant) mode

In controllerless mode, one AP serves as a virtual controller for the entire network. Learn more about Instant mode in this technology brief.

Mobility Controller mode

For optimized network performance, roaming and security, APs tunnel all traffic to a mobility controller for centrally managed traffic forwarding and segmentation, data encryption, and policy enforcement. Learn more in the ArubaOS datasheet.

Management options

Available management solutions include Aruba Central (cloud-managed) or Aruba AirWave – a multi-vendor on-premises management solution.

For large installations across multiple sites, APs can be factory-shipped and can be activated with Zero Touch Provisioning through Aruba Central or AirWave. This reduces deployment time, centralizes configuration, and helps manage inventory.

ADDITIONAL WI-FI FEATURES

Each AP also includes the following standards-based technologies:

Transmit beamforming (TxBF)

Increased signal reliability and range

Passpoint Wi-Fi (Release 2) (Hotspot 2.0)

Seamless cellular-to-Wi-Fi carryover for guests

Dynamic Frequency Selection (DFS)

Optimized use of available RF spectrum

Maximum Ratio Combining (MRC)

Improved receiver performance

Cyclic Delay/Shift Diversity (CDD/CSD)

Greater downlink RF performance

Space-Time Block Coding

Increased range and improved reception

Low-Density Parity Check (LDPC)

High-efficiency error correction for increased throughput

SPECIFICATIONS

Hardware variants

- AP-514: External antenna models
- AP-515: Internal antenna models

Wi-Fi radio specifications

- AP type: Indoor, dual radio, 5GHz 802.11ax 4x4 MIMO and 2.4GHz 802.11ax 2x2 MIMO
- 5GHz radio:
 - Four spatial stream Single User (SU) MIMO for up to 4.8Gbps wireless data rate to individual 4SS HE160 802.11ax client devices (max)
 - Two spatial stream Single User (SU) MIMO for up to 1.2Gbps wireless data rate to individual 2SS HE80 802.11ax client devices (typical)
 - Four spatial stream Multi User (MU) MIMO for up to 4.8Gbps wireless data rate to up to four 1SS or two 2SS HE160 802.11ax DL-MU-MIMO capable client devices simultaneously (max)
 - Four spatial stream Multi User (MU) MIMO for up to 2.4Gbps wireless data rate to up to four 1SS or two 2SS HE80 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)
- 2.4GHz radio:
 - Two spatial stream Single User (SU) MIMO for up to 575Mbps wireless data rate to individual 2SS HE40 802.11ax client devices or to two 1SS HE40 802.11ax DL-MU-MIMO capable client devices simultaneously (max)
 - Two spatial stream Single User (SU) MIMO for up to 287Mbps wireless data rate to individual 2SS HE20 802.11ax client devices or to two 1SS HE20 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)
- Support for up to 512 associated client devices per radio, and up to 16 BSSIDs per radio
- Supported frequency bands (country-specific restrictions apply):
 - 2.400 to 2.4835GHz
 - 5.150 to 5.250GHz
 - 5.250 to 5.350GHz
 - 5.470 to 5.725GHz
 - 5.725 to 5.850GHz
- Available channels: Dependent on configured regulatory domain
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum

- Supported radio technologies:
 - 802.11b: Direct-sequence spread-spectrum (DSSS)
 - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
 - 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 16 resource units (for an 80MHz channel)
- Supported modulation types:
 - 802.11b: BPSK, QPSK, CCK
 - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)
 - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)
 - 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
- 802.11n high-throughput (HT) support: HT20/40
- 802.11ac very high throughput (VHT) support: VHT20/40/80/160
- 802.11ax high efficiency (HE) support: HE20/40/80/160
- Supported data rates (Mbps) :
 - 802.11b: 1, 2, 5.5, 11
 - 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
 - 802.11n (2.4GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40)
 - 802.11n (5GHz): 6.5 to 600 (MCS0 to MVC31, HT20 to HT40)
 - 802.11ac: 6.5 to 3,467 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160)
 - 802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)
 - 802.11ax (5GHz): 3.6 to 4,803 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE160)
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
 - 2.4 GHz band: +21 dBm (18dBm per chain)
 - 5 GHz band: +24 dBm (18 dBm per chain)
 - Note: conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.
- Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance
- Space-time block coding (STBC) for increased range and improved reception

- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
- Transmit beam-forming (TxBF) for increased signal reliability and range
- 802.11ax Target Wait Time (TWT) to support low-power client devices

Wi-Fi antennas

- AP-514: Four (female) RP-SMA connectors for external dual band antennas (A0 through A3, corresponding with radio chains 0 through 3). Worst-case internal loss between radio interface and external antenna connectors (due to diplexing circuitry): 1.3dB in 2.4GHz and 1.7dB in 5GHz.
- AP-515: Four integrated dual-band downtilt omni-directional antennas for 4x4 MIMO with peak antenna gain of 4.2dBi in 2.4GHz and 7.5dBi in 5GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 degrees.
 - Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the effective per-antenna pattern is 3.8dBi in 2.4GHz and 4.6dBi in 5GHz.

Additional interfaces

- E0: HPE SmartRate port (RJ-45, maximum negotiated speed 2.5Gbps)
 - Auto-sensing link speed (100/1000/2500BASE-T) and MDI/MDX
 - 2.5Gbps speed complies with NBase-T and 802.3bz specifications
 - PoE-PD: 48Vdc (nominal) 802.3af/at/bt (class 3 or higher)
 - 802.3az Energy Efficient Ethernet (EEE)
- E1: 10/100/1000BASE-T Ethernet network interface (RJ-45)
 - Auto-sensing link speed and MDI/MDX
 - 802.3az Energy Efficient Ethernet (EEE)
- Link aggregation (LACP) support between both network ports for redundancy and increased capacity
- DC power interface: 12Vdc (nominal, +/- 5%), accepts 2.1mm/5.5mm center-positive circular plug with 9.5mm length
- USB 2.0 host interface (Type A connector)
 - Capable of sourcing up to 1A / 5W to an attached device
- Bluetooth 5 and Zigbee (802.15.4) radio (2.4GHz)
 - Bluetooth 5: up to 8dBm transmit power (class 1) and -95dBm receive sensitivity
 - Zigbee: up to 8dBm transmit power and -97dBm receive sensitivity

- Integrated vertically polarized omnidirectional antenna with roughly 30 degrees downtilt and peak gain of 3.5dBi (AP-515) or 4.9dBi (AP-514)
- Visual indicators (two multi-color LEDs): for System and Radio status
- Reset button: factory reset, LED mode control (normal/off)
- Serial console interface (proprietary, micro-B USB physical jack)
- Kensington security slot

Power sources and power consumption

- The AP supports direct DC power and Power over Ethernet (PoE; on port E0)
- When both power sources are available, DC power takes priority over PoE
- Power sources are sold separately; see the ordering Information section below for details
- When powered by DC or 802.3at (class 4) / 802.3bt (class 5) PoE, the AP will operate without restrictions.
- When powered by 802.3af (class 3) PoE and with the IPM feature enabled, the AP will start up in unrestricted mode, but it may apply restrictions depending on the PoE budget and actual power. What IPM restrictions to apply, and in what order, is programmable.
- Operating the AP with an 802.3af (class 3 or lower) PoE source and IPM disabled is not supported.
- Maximum (worst-case) power consumption:
 - DC powered: 16.0W
 - PoE powered (802.3af, IPM enabled): 13.5W
 - PoE powered (802.3at/bt): 20.8W
- All numbers above are without an external USB device connected. When sourcing the full 5W power budget to such a device, the incremental (worst-case) power consumption for the AP is up to 5.7W (PoE powered) or 5.5W (DC powered).
- Maximum (worst-case) power consumption in idle mode: 12.6W (PoE) or 9.7W (DC)
- Maximum (worst-case) power consumption in deep-sleep mode: 5.9W (PoE) or 1.5W (DC)

Mounting details

A mounting bracket has been pre-installed on the back of the AP. This bracket is used to secure the AP to any of the (sold separately) mount kits; see the ordering Information section below for details.

Mechanical specifications

- Dimensions/weight (AP-515; unit, excluding mount bracket):
 - 200mm (W) x 200mm (D) x 46mm (H)/
7.9" (W) x 7.9" (D) x 1.8" (H)
 - 810g/28.5oz
- Dimensions/weight (AP-515; shipping):
 - 230mm (W) x 220mm (D) x 72mm (H)/
9.1" (W) x 8.7" (D) x 2.8" (H)
 - 1010g/35.5oz

Environmental specifications

- Operating conditions
 - Temperature: 0C to +50C/+32F to +122F
 - Humidity: 5% to 93% non-condensing
 - AP is plenum rated for use in air-handling spaces
 - ETS 300 019 class 3.2 environments
- Storage and transportation conditions
 - Temperature: -40C to +70C/-40F to +158F
 - Humidity: 5% to 93% non-condensing
 - ETS 300 019 classes 1.2 and 2.3 environments

Reliability

Mean Time Between Failure (MTBF): 560,000hrs (64yrs) at +25C operating temperature.

Regulatory compliance

- FCC/ISED
- CE Marked
- RED Directive 2014/53/EU
- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- UL/IEC/EN 60950
- EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

Regulatory model numbers

- AP-514: APIN0514
- AP-515: APIN0515

Certifications

- UL2043 plenum rating
- Wi-Fi Alliance:
 - Wi-Fi CERTIFIED a, b, g, n, ac, ax
 - WPA, WPA2 and WPA3 – Enterprise with CNSA option, Personal(SAE), Enhanced Open (OWE)
 - WMM, WMM-PS, Wi-Fi Vantage, W-Fi Agile Multiband
 - Passpoint (release 2)
- Bluetooth SIG

WARRANTY

Aruba's hardware limited lifetime warranty.

MINIMUM OPERATING SYSTEM SOFTWARE VERSIONS

ArubaOS and Aruba InstantOS 8.4.0.0 (with some restrictions). For unrestricted operation, use 8.6.0.0 or later.

RF PERFORMANCE TABLE

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4GHz, 802.11b		
1Mbps	18	-96
11Mbps	18	-88
2.4GHz, 802.11g		
6Mbps	18	-93
54Mbps	17	-75
2.4GHz, 802.11n HT20		
MCS0	18	-93
MCS7	16	-75
2.4GHz, 802.11ax HE20		
MCS0	18	-92
MCS11	14	-62
5GHz, 802.11a		
6Mbps	18	-93
54Mbps	17	-75
5GHz, 802.11n HT20		
MCS0	18	-93
MCS7	16	-73
5GHz, 802.11n HT40		
MCS0	18	-90
MCS7	16	-70

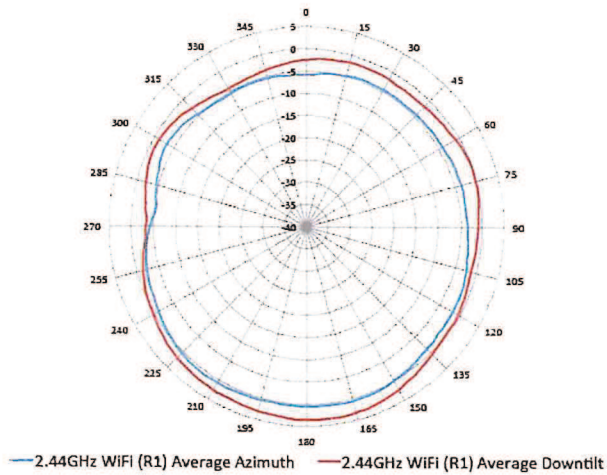
RF PERFORMANCE TABLE

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
5GHz, 802.11ac VHT20		
MCS0	18	-93
MCS9	16	-68
5GHz, 802.11ac VHT40		
MCS0	18	-90
MCS9	16	-65
5GHz, 802.11ac VHT80		
MCS0	18	-87
MCS9	16	-62
5GHz, 802.11ac VHT160		
MCS0	18	-84
MCS9	16	-59
5GHz, 802.11ax HE20		
MCS0	18	-90
MCS11	14	-60
5GHz, 802.11ax HE40		
MCS0	18	-87
MCS11	14	-57
5GHz, 802.11ax HE80		
MCS0	18	-84
MCS11	14	-54
5GHz, 802.11ax HE160		
MCS0	18	-81
MCS11	13	-51

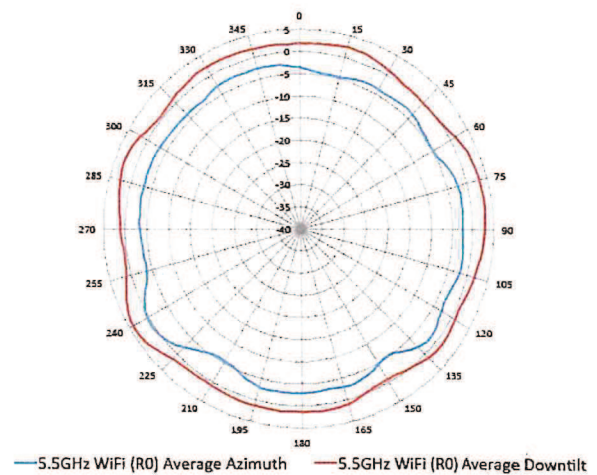
ANTENNA PATTERN PLOTS

Horizontal planes (top view)

Showing azimuth (0 degrees) and 30 degrees downtilt patterns (averaged patterns for all applicable antennas)



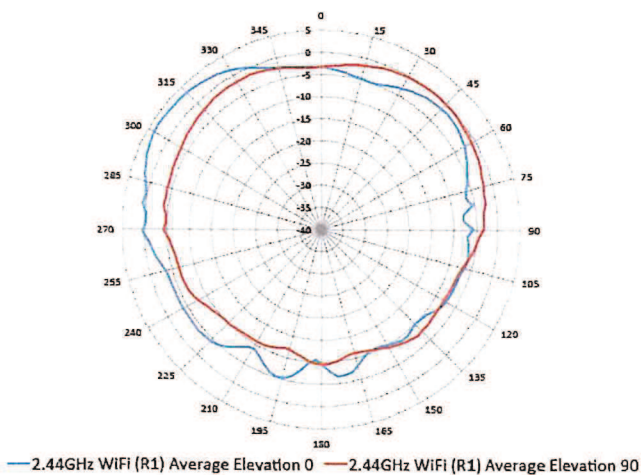
2.44GHz Wi-Fi (antennas 1, 2)



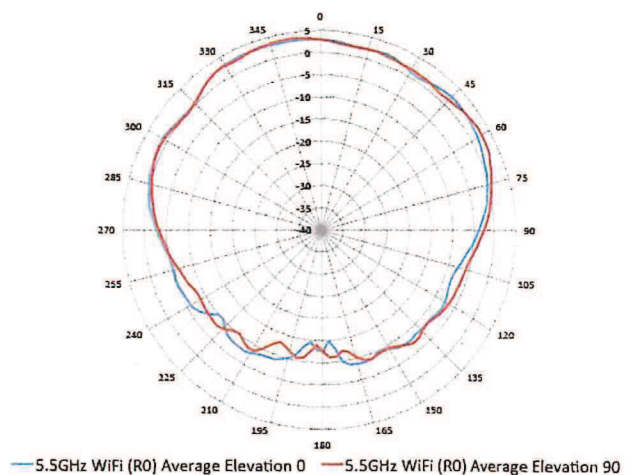
5.5GHz Wi-Fi (antennas 1, 2, 3, 4)

Vertical (elevation) planes (side view, AP facing up)

Showing side view with AP rotated 0 and 90 degrees (averaged patterns for all applicable antennas)



2.44GHz Wi-Fi (antennas 1, 2)



5.5GHz Wi-Fi (antennas 1, 2, 3, 4)

ORDERING INFORMATION

Part Number	Description
Aruba 510 Series Campus Access Points	
Q9H54A	Aruba AP-514 (EG) Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H55A	Aruba AP-514 (IL) Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H56A	Aruba AP-514 (JP) Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H57A	Aruba AP-514 (RW) Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H58A	Aruba AP-514 (US) Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H59A	Aruba AP-515 (EG) Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H60A	Aruba AP-515 (IL) Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H61A	Aruba AP-515 (JP) Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H62A	Aruba AP-515 (RW) Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H63A	Aruba AP-515 (US) Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H64A	Aruba AP-514 (EG) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H65A	Aruba AP-514 (IL) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H66A	Aruba AP-514 (JP) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H67A	Aruba AP-514 (RW) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H68A	Aruba AP-514 (US) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax External Antennas Unified Campus AP
Q9H69A	Aruba AP-515 (EG) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H70A	Aruba AP-515 (IL) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H71A	Aruba AP-515 (JP) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H72A	Aruba AP-515 (RW) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Q9H73A	Aruba AP-515 (US) TAA Dual Radio 4x4:4 + 2x2:2 802.11ax Internal Antennas Unified Campus AP
Mounting kits	
JZ370A	AP-MNT-MP10-A Campus AP mount bracket kit (10-pack) type A: suspended ceiling rail, flat 9/16
Q9G69A	AP-MNT-MP10-B Campus AP mount bracket kit (10-pack) type B: suspended ceiling rail, flat 15/16
Q9G70A	AP-MNT-MP10-C Campus AP mount bracket kit (10-pack) type C: suspended ceiling rail, profile 9/16
Q9G71A	AP-MNT-MP10-D Campus AP mount bracket kit (10-pack) type D: solid surface
R1C72A	AP-MNT-MP10-E Campus AP mount bracket kit (10-pack) type E: wall-box
R3J15A	AP-MNT-A Campus AP mount bracket kit (individual) type A: suspended ceiling rail, flat 9/16
R3J16A	AP-MNT-B Campus AP mount bracket kit (individual) type B: suspended ceiling rail, flat 15/16
R3J17A	AP-MNT-C Campus AP mount bracket kit (individual) type C: suspended ceiling rail, profile 9/16
R3J18A	AP-MNT-D Campus AP mount bracket kit (individual) type D: solid surface
R3J19A	AP-MNT-E Campus AP mount bracket kit (individual) type E: wall-box
R3T20A	AP-MNT-MP10-X AP mount adapter 10-pack
Cosmetic covers	
Q9H74A	AP-515-CVR-20 20-pack for AP-515 with Holes for LED Indicators White Non-glossy Snap-on Covers

ORDERING INFORMATION

Part Number	Description
Power accessories	
JX990A	AP-AC-12V30B AC-to-DC Power Adapter (12V/30W)
JW629A	PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector
Other accessories	
JY728A	AP-CBL-SERU Micro-USB TTL3.3V to USB2.0 AP Console Adapter Cable
Antennas	See the 510 Series Ordering Guide for compatible options and the Aruba website for specs

For more ordering information, please refer to the ordering guide