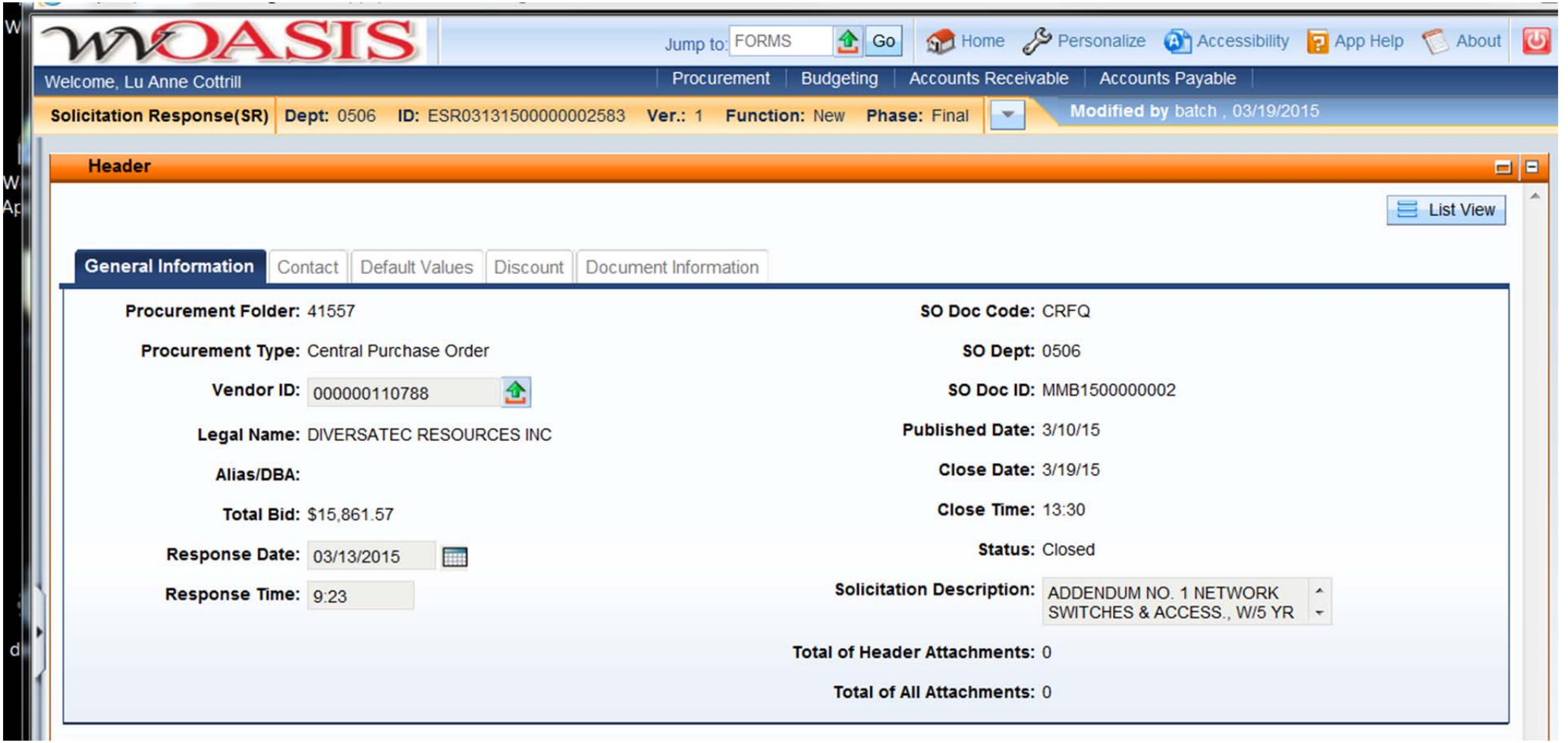
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


WVOASIS
Jump to: FORMS Go
Home
Personalize
Accessibility
App Help
About
Welcome, Lu Anne Cottrill
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0506 ID: ESR03131500000002583 Ver.: 1 Function: New Phase: Final
Modified by batch , 03/19/2015
Header
List View
General Information
Contact
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Document Information
Procurement Folder: 41557
Procurement Type: Central Purchase Order
Vendor ID: 000000110788
Legal Name: DIVERSATEC RESOURCES INC
Alias/DBA:
Total Bid: $15,861.57
Response Date: 03/13/2015
Response Time: 9:23
SO Doc Code: CRFQ
SO Dept: 0506
SO Doc ID: MMB1500000002
Published Date: 3/10/15
Close Date: 3/19/15
Close Time: 13:30
Status: Closed
Solicitation Description: ADDENDUM NO. 1 NETWORK SWITCHES & ACCESS., W/5 YR
Total of Header Attachments: 0
Total of All Attachments: 0

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State Of West Virginia
Solicitation Response

Proc Folder : 41557

Solicitation Description : ADDENDUM NO. 1 NETWORK SWITCHES & ACCESS., W/5 YR EXTENDED

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation No	Version
	2015-03-19 13:30:00	SR 0506 ESR03131500000002583	1

VENDOR

000000110788

DIVERSATEC RESOURCES INC

FOR INFORMATION CONTACT THE BUYER

Gregory Clay

(304) 558-2566
gregory.c.clay@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	NETWORK SWITCH	9.00000	EA	$1,354.41	

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.2

CATALYST 2960S 48 GIG POE 740W, 4 X SFP LAN BASE SWITCH OR EQUAL

MUST INCLUDE FIVE (5) YEAR EXTENDED SERVICE AGREEMENT.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	NETWORK SWITCH	2.00000	EA	$650.14	

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.3

CATALYST 2960S 24 GIG POE 370 W, 2 x SFP LAN BASE SWITCH OR EQUAL.

MUST INCLUDE FIVE (5) EXTENDED SERVICE AGREEMENT.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	STACK MODULE	7.00000	EA	$167.45	

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.4

CISCO CATALYST 2960S FLEX STACK MODULE OR EQUAL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	STACKING CABLE	5.00000	EA	$44.07	

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTIO 4.5

CISCO FLEXSTACK 50CM STACKING CABLE OR EQUAL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	STACKING CABLE	2.00000	EA	$55.90	

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.6

CISCO FLEXSTACK 1M STACKING CABLE OR EQUAL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	TRANSCEIVER	14.00000	EA	$61.95	

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.7

CISCO GE SFP, LC CONNECTOR SX TRANSCEIVER OR EQUAL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	AC POWER CORD	11.00000	EA	$0.00	

Comm Code	Manufacturer	Specification	Model #
26121636	CISCO		

Extended Description :

SECTION 4.8

AC POWER CORD, 16 AWG OR EQUAL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	INSERT PACKOUT	11.00000	EA	$0.00	

Comm Code	Manufacturer	Specification	Model #
43222600			

Extended Description :

SECTION 4.9.1
SECTION 4.9.2

INSERT PACKOUT

DIVERSATEC
10022 Cheshire Rd Sunbury, OH 43074
Main/Fax: 740-965-3400

March 12, 2015

Greg Clay, Purchasing
WV Dept. of Administration, Purchasing Division
2019 Washington Street, East
Charleston, WV 25305-0130

Re: MMB1500000002

We appreciate the opportunity to present our solution to the Mildred Mitchell-Bateman Hospital located at 1530 Norway Avenue, Huntington, WV to replace existing network equipment.

Hewlett-Packard is the second largest provider of network switched in the world. Larger than the next five combined. Gartner Magic Quadrant shows HP in the upper quadrant. HP is growing at a double digit pace in networking, while the current network provider is losing market share to HP.

Our proposed response is an alternative solution that meets and exceeds the specification stated in your request. Enclosed is documentation on the product and its TRUE Lifetime Warranty that exceeds your specification. The first 3 years you have 24 x7 phone support, thereafter it reverts to 8 hours a day, 5 days a week as was requested.

The HP 2920 series switches meet the specifications. If you have any questions on this product, please contact us to clarify any concerns. HP switches are comply with open standards. These products are interoperable with CISCO product in the event you have CISCO on site today.

I look forward to hearing the results of our submitted response.

Sincerely,

Ralph DiFranco

Ralph DiFranco, Sr. Enterprise Account Manager
Diversatec Resources, Inc.

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation

—

Proc Folder: 41557

Doc Description: NETWORK SWITCHES & ACCESS., W/5 YR EXTENDED SERVICE AGREEMEN

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2015-02-13	2015-03-12 13:30:00	CRFQ 0506 MMB1500000002	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

FOR INFORMATION CONTACT THE BUYER

Gregory Clay
(304) 558-2566
gregory.c.clay@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK SWITCH	9.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.2

CATALYST 2960S 48 GIG POE 740W, 4 X SFP LAN BASE SWITCH OR EQUAL

MUST INCLUDE FIVE (5) YEAR EXTENDED SERVICE AGREEMENT.

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	NETWORK SWITCH	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.3

CATALYST 2960S 24 GIG POE 370 W, 2 x SFP LAN BASE SWITCH OR EQUAL.

MUST INCLUDE FIVE (5) EXTENDED SERVICE AGREEMENT.

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	STACK MODULE	7.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.4

CISCO CATALYST 2960S FLEX STACK MODULE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	STACKING CABLE	5.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTIO 4.5

CISCO FLEXSTACK 50CM STACKING CABLE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	STACKING CABLE	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.6

CISCO FLEXSTACK 1M STACKING CABLE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801	
HEALTH AND HUMAN RESOURCES	WV OFFICE OF TECHNOLOGY
MILDRED MITCHELL - BATEMAN HOSPITAL	BLDG 5, 10TH FLOOR
PO BOX 448	1900 KANAWHA BLVD E
HUNTINGTON WV 25709	CHARLESTON WV 25304
US	US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	TRANSCEIVER	14.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.7

CISCO GE SFP, LC CONNECTOR SX TRANSCEIVER OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801	
HEALTH AND HUMAN RESOURCES	WV OFFICE OF TECHNOLOGY
MILDRED MITCHELL - BATEMAN HOSPITAL	BLDG 5, 10TH FLOOR
PO BOX 448	1900 KANAWHA BLVD E
HUNTINGTON WV 25709	CHARLESTON WV 25304
US	US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	AC POWER CORD	11.00000	EA		

Comm Code	Manufacturer	Specification	Model #
26121636	CISCO		

Extended Description :

SECTION 4.8

AC POWER CORD, 16 AWG OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
8	INSERT PACKOUT	11.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600			

Extended Description :

SECTION 4.9.1
SECTION 4.9.2

INSERT PACKOUT

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation

—

Proc Folder: 41557

Doc Description: ADDENDUM NO. 1 NETWORK SWITCHES & ACCESS., W/5 YR EXTENDED

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2015-03-10	2015-03-19 13:30:00	CRFQ 0506 MMB1500000002	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

FOR INFORMATION CONTACT THE BUYER

Gregory Clay
(304) 558-2566
gregory.c.clay@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK SWITCH	9.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.2

CATALYST 2960S 48 GIG POE 740W, 4 X SFP LAN BASE SWITCH OR EQUAL

MUST INCLUDE FIVE (5) YEAR EXTENDED SERVICE AGREEMENT.

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	NETWORK SWITCH	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222612	CISCO		

Extended Description :

SECTION 4.3

CATALYST 2960S 24 GIG POE 370 W, 2 x SFP LAN BASE SWITCH OR EQUAL.

MUST INCLUDE FIVE (5) EXTENDED SERVICE AGREEMENT.

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	STACK MODULE	7.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.4

CISCO CATALYST 2960S FLEX STACK MODULE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	STACKING CABLE	5.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTIO 4.5

CISCO FLEXSTACK 50CM STACKING CABLE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	STACKING CABLE	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.6

CISCO FLEXSTACK 1M STACKING CABLE OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801	
HEALTH AND HUMAN RESOURCES	WV OFFICE OF TECHNOLOGY
MILDRED MITCHELL - BATEMAN HOSPITAL	BLDG 5, 10TH FLOOR
PO BOX 448	1900 KANAWHA BLVD E
HUNTINGTON WV 25709	CHARLESTON WV 25304
US	US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	TRANSCEIVER	14.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600	CISCO		

Extended Description :

SECTION 4.7

CISCO GE SFP, LC CONNECTOR SX TRANSCEIVER OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801	
HEALTH AND HUMAN RESOURCES	WV OFFICE OF TECHNOLOGY
MILDRED MITCHELL - BATEMAN HOSPITAL	BLDG 5, 10TH FLOOR
PO BOX 448	1900 KANAWHA BLVD E
HUNTINGTON WV 25709	CHARLESTON WV 25304
US	US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	AC POWER CORD	11.00000	EA		

Comm Code	Manufacturer	Specification	Model #
26121636	CISCO		

Extended Description :

SECTION 4.8

AC POWER CORD, 16 AWG OR EQUAL

INVOICE TO	SHIP TO
PROCUREMENT OFFICER - 304-525-7801 HEALTH AND HUMAN RESOURCES MILDRED MITCHELL - BATEMAN HOSPITAL PO BOX 448 HUNTINGTON WV 25709 US	WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
8	INSERT PACKOUT	11.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43222600			

Extended Description :

SECTION 4.9.1
SECTION 4.9.2

INSERT PACKOUT

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

SPECIFICATIONS FOR NETWORK SWITCHES

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of Mildred Mitchell-Bateman Hospital located at 1530 Norway Avenue, Huntington WV 25705 to establish a contract for the one time purchase Network Switches to replace existing network equipment and Extended Service Agreement.

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in Section 2 of the General Terms and Conditions.

   2.1 **"Contract Service"** means extended service agreement as more fully described in these specifications.

   2.2 **"Contract Items"** means Catalyst 2960S 48 GigE PoE 740W, 4 x SFP LAN Base Switch: Catalyst 2960S 24 GigE PoE 370W, 2 x SFP LAN Base Switch; Cisco Catalyst 2960S Flex Stack Module: Cisco Flexstack 50CM Stacking Cable: Cisco FlexStack 1 m Stacking Cable; GE SFP, LC connector SX Transceiver; AC Power Cord, 16AWG, CON-SNT-2960S4FS, CON-SNT-2960s2PS and associated hardware or equal.

   2.3 **"Solicitation"** means the official notice of an opportunity to supply the State with goods and services that is published by the Purchasing Division identified as CRFQ 0506 ***MMB1500000002.***

3. **QUALIFICATIONS:** Vendor, or Vendor's staff if requirements are inherently limited to individuals rather than corporate entities, shall have the following minimum qualifications:

   3.1 Must have a Valid Current West Virginia Business License

4. **GENERAL REQUIREMENTS:**

   4.1 **Mandatory Contract Service Requirements:** Contract Items and Services must meet or exceed the mandatory requirements listed below.

   4.2 Must be Catalyst 2960S 48 GigE PoE 740W, 4 x SFP LAN Base Switch, Part Number WS-C2960S-48FPS-L or equal.

   4.3 Must be Catalyst 2960S 24GigE PoE 370W, 2 x SFP LAN Base Switch, Part Number WS-C2960S-24PS-L or equal.

   4.4 Must be Cisco Catalyst 2960S FlexStack Stack Module,

Part Number C2960S-STACK or equal.

4.5 Must be Cisco FlexStack 50cm Stacking Cable,
Part Number CAB-STK-E-0.5M or equal.

4.5.1 This cable must connect adjacent switches in a stack.

4.6 Must be Cisco FlexStack 1m Stacking Cable,
Part Number Cab-STK-E-1M or equal.

4.6.1 This cable must connect the top and bottom switch in a stack of three (3) switches.

4.7 Must be Cisco GE SFP, LC connector SX Transceiver,
Part Number GLC-SX-MM or equal.

4.8 Must be powered by electricity by AC Power Cord, 16AWG,
Part Number CAB-16AWG-AC or equal.

4.9 Must provide Insert Packout – PI-MSE for the each of the following:

4.9.1 (9) each Catalyst 2960S 48 GigE PoE 740W 4 x SFP LAN Base Switch or equal.

4.9.2 (2) each Catalyst 2960S 24 GigE PoE 370W 2 x SFP LAN Base Switch or equal.

4.10 Vendor must provide an extended service agreement to include the following requirements for a total of five (5) years.

The extended service agreement must be Cisco Smartnet for each switch listed in 4.2.
Part number CON-SNTP-2960S4FS or equal.

The service must include telephone technical support eight (8) hours a day, 8:00am to 4:00pm eastern time zone/five (5) days a week, next day hardware replacement, and software updates.

4.11 Vendor must provide an extended service agreement to include the following requirements for year one (1) and renewals for four (4) additional years for a total of five (5) years.

The extended service agreement must be Cisco Smartnet for each switch listed in Section 4.3.
Part number CON-SNTP-2960S2PS or equal.

The service must include telephone technical support eight (8) hours a day, 8:00am to 4:00pm eastern time zone/five (5) days a week, next day hardware replacement, and software updates.

5. CONTRACT AWARD:

5.1 Contract Award: The Contract is intended to provide Agencies with a purchase price for the Contract Items and Service(s). The Contract shall be awarded to the Vendor that provides the Contract Items and Service(s) meeting the required specifications for the lowest overall total cost as shown on the Pricing Page. The renewals included in this purchase are only applicable to the additional years of the "Extended Service Agreements" named within the document and do not include the purchase or renewal of any other items.

5.2 Pricing Page: Vendor should complete the Pricing Page by filling in the price per requested unit, the extended price for the total number of units requested and grand total for all goods and services requested. Vendor should completed the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid be disqualified.

Vendor may also submit bids using the VSS/WV Oasis website and insert pricing on the commodity lines.
You can go to: https://prod-fin-vss.wvoasis.gov/webapp/prdvss11/AltSelfService to submit online bids.

6. PERFORMANCE: Vendor and Agency shall agree upon a schedule for performance of Contract Services and Items and Contract Services Deliverables, unless such a schedule is already included herein by Agency. In the event that this Contract is designated as an open-end contract, Vendor shall perform in accordance with the release orders that may be issued against this Contract.

7. PAYMENT: Agency shall pay a flat fee, as shown on the Pricing Pages, for all Contract Items and Services performed and accepted under this contract. Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

8. TRAVEL: Vendor shall be responsible for all mileage and travel costs, including travel time, associated with performance of this Contract. Any anticipated mileage or travel cost may be included in the flat fee or hourly rate listed on Vendor's bid, but such costs will not be paid by the Agency.

9. DELIVERY AND RETURN:

9.1 Shipment and Delivery: Vendor shall ship the Contract Items Immediately after being awarded this Contract and receiving a purchase order or a notice to proceed. Vendor shall

deliver the Contract Items within thirty (30) days after receiving a purchase order or notice to proceed. Contract Items must be delivered to Agency at: West Virginia Office of Technology, 1900 Kanawha Boulevard East, Building 5, A-916, Charleston WV 25305.

9.2 **Late Delivery:** The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for the cancellation of the Contract, and/or obtaining the Contract Items from a third party.

Any Agency seeking to obtain Contract Items from a third party under this provision must first obtain approval of the Purchasing Division.

9.3 **Delivery Payment/Risk of Loss:** Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location.

9.4 **Return of Unacceptable Items:** If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

9.5 **Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within thirty (30) days of receipt, F.O.B Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in resalable condition if they are unused and in original packaging. Any restock charge for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

10. FACILITIES ACCESS: Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access card and/or keys are required:

10.1 Vendor must identify principle service personnel which will be issued access cards and/or keys to perform service.

10.2 Vendor will be responsible for controlling cards and/or keys and will pay replacement fee, if the cards and/or keys become lost or stolen.

10.3 Vendor shall notify Agency immediately of any lost, stolen or missing cards and/keys.

10.4 Anyone performing under this Contract will be subject to the Agency's security protocol and procedures.

10.5 Vendor shall inform all staff of Agency's security protocol and procedures.

11. VENDOR DEFAULT:

11.1 The following shall be considered a vendor default under this Contract.

11.1.1 Failure to perform Contract Services in accordance with the requirements contained herein.

11.1.2 Failure to comply with other specifications and requirements contained herein.

11.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services Provided under this Contract.

11.1.4 Failure to remedy deficient performance upon request.

11.2 The following remedies shall be available to Agency upon default.

11.2.1 Immediate cancellation of the Contract

11.2.2 Immediate cancellation of one or more release orders issued under this Contract.

11.2.3 Any other remedies available in law or equity.

12. MISCELLANEOUS:

12.1 Point of Contact: During the performance of this Contract, Vendor must designate and maintain a primary point of contact responsible for overseeing Vendor's responsibilities under this Contract. The Point of Contact must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor shall list its Point Of Contact and his or her contact information below.

Point of Contact: Ralph DiFranco Diane Milholland

Telephone Number: Office : 614-818-9741

Cell: 614-787-6948 937-536-2980

Fax Number: 740-965-3403 (Diversatec HQ)

Email Address: rdrfranco@Allinestech.com dmilholland@Allinestech.com

12.2 Explanation of Award: Agency will Evaluate the bids received based on the Grand Total Bid Price. A Contract will be awarded to the apparent successful Vendor that provides the Contract Items that meets or exceeds the required specifications contained herein, for the lowest overall Grand Total Bid Price.

Payment to the Vendor will be made in arrears after delivery and 100% of acceptance of Contract Items by the Agency.

Please Complete:

Vendor Business Name: Diversatec Resources, Inc.

Vendor Address: 10022 Cheshire Rd.
Sunbury, Ohio 43074

Remit to Address: 10022 Cheshire Rd.
Sunbury, Ohio 43074

Vendor Telephone Number: 740-965-3400

Vendor Fax Number: 740-965-3403

Vendor Email: dan.frost@diversatec.net

Vendor Authorized Representative: Ralph DiFranco
(Please Print)

Vendor Authorized Representative Signature: Ralph DiFranco

Date: 3-9-15

SOLICITATION NUMBER: MMB1500000002
Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[✓] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✓] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

ADDENDUM NO. 1

1) TO CHANGE THE BID OPENING DATE FOR THIS CRFQ TO MARCH 19, 2015 AT 1:30 PM EST.

2) TO PROVIDE A COPY OF CLARIFICATIONS TO TECHNICAL QUESTIONS SUBMITTED.

3) TO PROVIDE ADDENDUM ACKNOWLEDGMENT. THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID.

END OF ADDENDUM NO. 1

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ADDENDUM #1 CRQS MMB1500000002

Question #1:

Can we bid on the alternate brands like HP for this solicitation?

Answer #1:

Yes, as long as they alternate brands meet the mandatories listed for each item. You must attach specification sheets with your bid, so that we can compare that they are "equal" to the items solicited.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: MMB1500000002

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[✓]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

DIVERSATEC RESOURCES INC.
Company

Raph di Franco
Authorized Signature

3-12-15
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

RFQ No. MMB1500000002

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Diversatec Resources, Inc

Authorized Signature: Ralph DiFranco Date: 3-9-15

State of Ohio

County of Delaware, to-wit:

Taken, subscribed, and sworn to before me this 9th day of March, 2015

My Commission expires October 1, 2018

AFFIX SEAL HERE

NOTARIAL SEAL
STATE OF OHIO

ANNE KRAMER
NOTARY PUBLIC - OHIO
MY COMMISSION EXPIRES 10-1-18

NOTARY PUBLIC Anne Kramer

Rev. 04/14

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**

____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% vendor preference for the reason checked:**

____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% vendor preference for the reason checked:**

____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% vendor preference for the reason checked:**

____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**

____ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder:_____ **Signed:**_____

Date:_____ **Title:**_____

QUOTE

DIVERSATEC

QUOTE #	AAAQ5970-01
DATE	Mar 10, 2015

Diversatec Resources - 10022 Cheshire Rd. - Sunbury, OH. 43074

To

Mildred Mitchell- Bateman Hospital
1530 Norway Avenue
Huntington, WV 25705

Phone

Salesperson	P.O. Number	Payment Terms	Due Date
jstanley			

Qty	Part Number	Description	Unit Price	Total Price
2.00	J9727A	HP 2920-24G-POE+ Switch	$650.14	$1,300.28
14.00	J4858C	HP X121 1G SFP LC SX Transceiver	$61.95	$867.30
7.00	J9733A	HP 2920 2-port Stacking Module	$167.45	$1,172.15
5.00	J9734A	HP 2920 0.5m Stacking Cable	$44.07	$220.35
2.00	J9735A	HP 2920 1.0m Stacking Cable	$55.90	$111.80
9.00	J9836A	HP 2920-48G-PoE+ 740W Switch	$1,354.41	$12,189.69

SUBTOTAL	$15,861.57
SALES TAX	$0.00
TOTAL	$15,861.57

FOB Destination
Quote is valid for 30 days

NOTE: Must be ordered as a complete configuration to qualify for this pricing. Any change to configuration requires requoting.

Diversatec Resources - 10022 Cheshire Rd. - Sunbury, OH. 43074
PH: (740)965-3400 FX: (740)965-3403
MBE Certification # - MBE-0946 / Expires 12/18/2016 EDGE Certification # - EDGE-0946 / Expires 12/18/2016

Data sheet

HP 2920 Switch Series

Key features

- High-performance Gigabit Ethernet access switch
- Four optional 10GbE (SFP+ and/or 10GBASE-T) ports
- Stacking capability with a total of four switches
- Layer 2 and Layer 3 plus static and RIP routing, PoE and PoE+ support
- Lifetime Warranty, sFlow, ACLs and rate limiting

Product overview

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

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

Together with static and RIP routing, robust security and management, enterprise-class features, free lifetime warranty and free software updates, the 2920 switch series is a cost-effective, scalable solution for customers who are building high-performance networks. These switches can be deployed at the enterprise edge, in remote branch offices, and in converged networks.

Features and benefits

Quality of Service (QoS)

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

Connectivity

- **Flexible 10 Gbps Ethernet connectivity**
  up to four optional 10-Gigabit ports (SFP+ and/or 10GBASE-T)
- **Two-port stacking module with up to 40 Gbps/port**
  optional two-port stacking module allows stacking of up to four switch units into a single virtual device
- **Auto-MDIX**
  automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **Dual-personality functionality**
  includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, and -LH, or 100-FX
- **IEEE 802.3at Power over Ethernet (PoE+)**
  provide 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 for 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**
    allows the switches to be managed and deployed at the edge of IPv6 networks
  - **Dual stack (IPv4/IPv6)**
    provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
  - **MLD snooping**
    forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network

Performance

- **Energy-efficient design**
  - **High-efficiency power supplies**
    80 PLUS Silver Certified power supply increases power savings
  - **Energy-efficient Ethernet (EEE) support**
    reduces power consumption in accordance with IEEE 802.3az
- **HP ProVision ASIC architecture**
  is designed with the latest HP ProVision ASIC, providing 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 data-driven IGMP**
  automatically prevent flooding of IP multicast traffic
- **LLDP-MED (Media Endpoint Discovery)**
  is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**
  is an automated device discovery protocol that provides easy mapping of network management applications
- **PoE and PoE+ allocations**
  support multiple methods (automatic, IEEE 802.3at dynamic, LLDP-MED fine grain, IEEE 802.3af device class, or user specified) to allocate and manage PoE/PoE+ power for more efficient energy savings

Resiliency and high availability

- **IEEE 802.1s Multiple Spanning Tree**
  provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and HP port trunking**
  support up to 60 static, dynamic or distributed trunks active across a stack, with each trunk having up to eight links (ports) per static trunk; trunking across stack members is supported
- **Ring and chain stacking topology**
  allows failure of a link or switch in the ring of stacked switches, while the remaining connected switches continue operation

Management

- **SNMPv1, v2, and v3**
  provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption

- **Out-of-band Ethernet management port**
  enables management over a separate physical management network, keeping management traffic segmented from network data traffic

Manageability

- **Dual flash images**
  provides independent primary and secondary operating system files for backup while upgrading
- **Friendly port names**
  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 network problem solving
- **Uni-Directional Link Detection (UDLD)**
  monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices.

Layer 2 switching

- **VLAN support and tagging**
  supports IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously
- **GARP VLAN Registration Protocol**
  allows automatic learning and dynamic assignment of VLANs
- **Jumbo packet support**
  supports up to 9220-byte frame size to improve the performance of large data transfers
- **IEEE 802.1v protocol VLANs**
  isolate select non-IPv4 protocols automatically into their own VLANs

Layer 3 routing

- **Static IP routing**
  provides manually configured routing; includes ECMP capability
- **Routing Information Protocol (RIP)**
  provides RIPv1 and RIPv2 routing
- **256 static and 2,048 RIP routes**
  facilitate segregation of user data without adding external hardware

Security

- **Multiple user authentication methods**
  - **IEEE 802.1X**
    is an industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
  - **Web-based authentication**
    is similar to IEEE 802.1X and provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant
  - **MAC-based authentication**
    authenticates the client with the RADIUS server based on the client's MAC address
- **Authentication flexibility**
  - **Multiple IEEE 802.1X users per port**
    provides authentication of multiple IEEE 802.1X users per port; prevents user "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
- **IEEE 802.1X, MAC or Web authentication**
  provides concurrent network access control and Web authentication of up to 24 clients per port
- **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
- **Custom banner**
  displays security policy when users log in to the switch
- **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
- **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**
  selectively configures broadcast control on heavy traffic port uplinks

Monitor and diagnostics

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

Warranty and support

- **Lifetime warranty**
  for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)†
- **Electronic and telephone support**
  limited electronic and telephone support is available from HP; to reach our support centers, refer to **www.hp.com/networking/contact-support**; for details on the duration of support provided with your product purchase, refer to **www.hp.com/networking/warrantysummary**
- **Software releases**
  to find software for your product, refer to **www.hp.com/networking/support**; for details on the software releases available with your product purchase, refer to **www.hp.com/networking/warrantysummary**

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

HP 2920 Switch Series

Specifications

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Ports	20 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	20 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
	4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)	4 RJ-45 dual-personality 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+)
	2 module slots	2 module slots
	1 Stacking module slot	1 Stacking module slot
	1 Dual-personality (RJ-45 or USB micro-B)	1 Dual-personality (RJ-45 or USB micro-B)
	1 USB 1.1	1 USB 1.1
	1 RJ-45 out-of-band management port	1 RJ-45 out-of-band management port
Power supplies	1 power supply slot 1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)	1 power supply slot 1 minimum power supply required includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)
Physical characteristics		
	17.42(w) x 13.23(d) x 1.75(h) in (44.25 x 33.6 x 4.45 cm) (1U height)	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)
Weight	11.57 lb (5.25 kg)	12.04 lb (5.46 kg)
Memory and processor		
	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash MB; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.5 MB Dynamic Egress + 4.5 MB Ingress)
Performance		
100 Mb Latency	< 9.0 µs (FIFO 64-byte packets)	< 9.0 µs (FIFO 64-byte packets)
1000 Mb Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.3 µs (FIFO 64-byte packets)
10 Gbps Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.3 µs (FIFO 64-byte packets)
Throughput	95.2 million pps	95.2 million pps
Switching capacity	128 Gbps	128 Gbps
Routing table size	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 57 dB, Pressure: 41.4 dB	Power: 61 dB, Pressure: 44.9 dB
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Silver	Silver
Maximum heat dissipation	198 BTU/hr (208.89 kJ/hr)	358 BTU/hr (377.69 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
Maximum power rating	58 W	475 W
Idle power	26 W	42 W
PoE power		370 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.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). 370 W of PoE+ power is available using the internal default power supply.
Safety	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1 :Second Edition ; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Standards and protocols (applies to all products in series)	**Denial of service protection** CPU DoS Protection **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 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 **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 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2236 IGMP Snooping RFC 2453 RIPv2 RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 3046 DHCP Relay Agent Information Option RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3576 Ext to RADIUS (CoA only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4675 RADIUS VLAN & Priority RFC 4861 Neighbor Discovery for IP version 6 (IPv6) RFC 4862 IPv6 Stateless Address Autoconfiguration UDLD (Uni-directional Link Detection) **IP multicast** RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 3376 IGMPv3 (host joins only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches **IPv6** RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 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 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 RFC 3810 MLDv2 (host joins only) RFC 4022 MIB for TCP RFC 4113 MIB for UDP RFC 4251 SSHv6 Architecture RFC 4252 SSHv6 Authentication RFC 4253 SSHv6 Transport Layer RFC 4254 SSHv6 Connection RFC 4293 MIB for IP RFC 4419 Key Exchange for SSH RFC 4443 ICMPv6 RFC 4541 IGMP & MLD Snooping Switch RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration **MIBs** IEEE 802.1ap (MSTP and STP MIB's only) 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 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 **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 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model VACM) 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 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting **Security** IEEE 802.1X Port Based Network Access Control IEEE 802.1X:Port-Based Network Access Control (2001) 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)

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)	
Standards and protocols (applies to all products in series)	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

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Ports	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 2 module slots 1 Stacking module slot 1 Dual-personality (RJ-45 or USB micro-B) 1 USB 1.1 1 RJ-45 out-of-band management port	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 RJ-45 dual-personality 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+) 2 module slots 1 Stacking module slot 1 Dual-personality (RJ-45 or USB micro-B) 1 USB 1.1 1 RJ-45 out-of-band management port
Power supplies	1 power supply slot 1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)	1 power supply slot 1 minimum power supply required includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)
Physical characteristics		
	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.39 cm) (1U height)
Weight	11.95 lb (5.42 kg)	12.57 lb (5.7 kg)
Memory and processor		
	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)
Performance		
100 Mb Latency	< 9.0 µs (FIFO 64-byte packets)	< 9.0 µs (FIFO 64-byte packets)
1000 Mb Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.2 µs (FIFO 64-byte packets)
10 Gbps Latency	< 3.2 µs (FIFO 64-byte packets)	< 3.2 µs (FIFO 64-byte packets)
Throughput	130.9 million pps	130.9 million pps
Switching capacity	176 Gbps	176 Gbps
Routing table size	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 57 dB, Pressure: 41.8 dB	Power: 62 dB, Pressure: 45.2 dB
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Silver	Silver
Maximum heat dissipation	239 BTU/hr (252.15 kJ/hr)	399 BTU/hr (420.95 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
Maximum power rating	70 W	487 W
Idle power	27 W	46 W
PoE power		370 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.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). 370 W of PoE+ power is available using the internal default power supply.
Safety	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1 :Second Edition ; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Standards and protocols (applies to all products in series)	**Denial of service protection** CPU DoS Protection **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 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 **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 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2236 IGMP Snooping RFC 2453 RIPv2 RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 3046 DHCP Relay Agent Information Option RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3576 Ext to RADIUS (CoA only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4675 RADIUS VLAN & Priority RFC 4861 Neighbor Discovery for IP version 6 (IPv6) RFC 4862 IPv6 Stateless Address Autoconfiguration UDLD (Uni-directional Link Detection) **IP multicast** RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 3376 IGMPv3 (host joins only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches **IPv6** RFC 1981 IPv6 Path 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(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 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 **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 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model VACM) 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 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting **Security** IEEE 802.1X Port Based Network Access Control IEEE 802.1X:Port-Based Network Access Control (2001) 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)

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)		HP 2920-48G-PoE+ Switch (J9729A)	
Standards and protocols (applies to all products in series)	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	

HP 2920 Switch Series accessories

Modules

NEW HP 2920 2-Port 10GbE SFP+ Module (J9731A)

NEW HP 2920 2-port 10GBASE-T Module (J9732A)

NEW HP 2920 2-Port Stacking module (J9733A)

Transceivers

HP X121 1G SFP LC SX Transceiver (J4858C)

HP X121 1G SFP LC LX Transceiver (J4859C)

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

HP X122 1G SFP LC BX-U Transceiver (J9143B)

HP X121 1G SFP LC LH Transceiver (J4860C)

HP X121 1G SFP RJ45 T Transceiver (J8177C)

HP X111 100M SFP LC FX Transceiver (J9054C)

HP X112 100M SFP LC BX-D Transceiver (J9099B)

HP X112 100M SFP LC BX-U Transceiver (J9100B)

HP X132 10G SFP+ LC SR Transceiver (J9150A)

HP X132 10G SFP+ LC LR Transceiver (J9151A)

HP X132 10G SFP+ LC LRM Transceiver (J9152A)

HP X132 10G SFP+ LC ER Transceiver (J9153A)

HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)

HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)

HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)

HP X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable (J9286B)

HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable (J9287B)

HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A)

HP X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9301A)

HP X244 10G XFP to SFP+ 5m Direct Attach Copper Cable (J9302A)

Cables

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

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

HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)

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

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

HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)

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

HP 0.5 m PremierFlex OM3+ LC/LC Optical Cable (BK837A)

HP 1 m PremierFlex OM3+ LC/LC Optical Cable (BK838A)

HP 2 m PremierFlex OM3+ LC/LC Optical Cable (BK839A)

HP 5 m PremierFlex OM3+ LC/LC Optical Cable (BK840A)

HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A)

HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A)

HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A)

NEW HP 2920 0.5m Stacking Cable (J9734A)

NEW HP 2920 1.0m Stacking Cable (J9735A)

NEW HP 2920 3.0m Stacking Cable (J9736A)

Mounting Kit

HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)

HP 2920-24G Switch (J9726A)

NEW HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)

HP 2920-24G-PoE+ Switch (J9727A)

NEW HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A)

HP 2920-48G Switch (J9728A)

NEW HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)

HP 2920-48G-PoE+ Switch (J9729A)

NEW HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A)

80 PLUS SILVER

To learn more, visit hp.com/networking

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Data sheet

HP 2920 Switch Series

Key features

- High-performance Gigabit Ethernet access switch
- Four optional 10GbE (SFP+ and/or 10GBASE-T) ports
- Stacking capability with a total of four switches
- Layer 2 and Layer 3 plus static and RIP routing, PoE and PoE+ support
- Lifetime Warranty, sFlow, ACLs and rate limiting

Product overview

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

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

Together with static and RIP routing, robust security and management, enterprise-class features, free lifetime warranty and free software updates, the 2920 switch series is a cost-effective, scalable solution for customers who are building high-performance networks. These switches can be deployed at the enterprise edge, in remote branch offices, and in converged networks.

Features and benefits

Quality of Service (QoS)

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

Connectivity

- **Flexible 10 Gbps Ethernet connectivity**
  up to four optional 10-Gigabit ports (SFP+ and/or 10GBASE-T)
- **Two-port stacking module with up to 40 Gbps/port**
  optional two-port stacking module allows stacking of up to four switch units into a single virtual device
- **Auto-MDIX**
  automatically adjusts for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- **Dual-personality functionality**
  includes four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, and -LH, or 100-FX
- **IEEE 802.3at Power over Ethernet (PoE+)**
  provide 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 for 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**
    allows the switches to be managed and deployed at the edge of IPv6 networks
  - **Dual stack (IPv4/IPv6)**
    provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
  - **MLD snooping**
    forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network

Performance

- **Energy-efficient design**
  - **High-efficiency power supplies**
    80 PLUS Silver Certified power supply increases power savings
  - **Energy-efficient Ethernet (EEE) support**
    reduces power consumption in accordance with IEEE 802.3az
- **HP ProVision ASIC architecture**
  is designed with the latest HP ProVision ASIC, providing 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 data-driven IGMP**
  automatically prevent flooding of IP multicast traffic
- **LLDP-MED (Media Endpoint Discovery)**
  is a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP)**
  is an automated device discovery protocol that provides easy mapping of network management applications
- **PoE and PoE+ allocations**
  support multiple methods (automatic, IEEE 802.3at dynamic, LLDP-MED fine grain, IEEE 802.3af device class, or user specified) to allocate and manage PoE/PoE+ power for more efficient energy savings

Resiliency and high availability

- **IEEE 802.1s Multiple Spanning Tree**
  provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and HP port trunking**
  support up to 60 static, dynamic or distributed trunks active across a stack, with each trunk having up to eight links (ports) per static trunk; trunking across stack members is supported
- **Ring and chain stacking topology**
  allows failure of a link or switch in the ring of stacked switches, while the remaining connected switches continue operation

Management

- **SNMPv1, v2, and v3**
  provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption

- **Out-of-band Ethernet management port**
  enables management over a separate physical management network, keeping management traffic segmented from network data traffic

Manageability

- **Dual flash images**
  provides independent primary and secondary operating system files for backup while upgrading
- **Friendly port names**
  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 network problem solving
- **Uni-Directional Link Detection (UDLD)**
  monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices.

Layer 2 switching

- **VLAN support and tagging**
  supports IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously
- **GARP VLAN Registration Protocol**
  allows automatic learning and dynamic assignment of VLANs
- **Jumbo packet support**
  supports up to 9220-byte frame size to improve the performance of large data transfers
- **IEEE 802.1v protocol VLANs**
  isolate select non-IPv4 protocols automatically into their own VLANs

Layer 3 routing

- **Static IP routing**
  provides manually configured routing; includes ECMP capability
- **Routing Information Protocol (RIP)**
  provides RIPv1 and RIPv2 routing
- **256 static and 2,048 RIP routes**
  facilitate segregation of user data without adding external hardware

Security

- **Multiple user authentication methods**
  - **IEEE 802.1X**
    is an industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
  - **Web-based authentication**
    is similar to IEEE 802.1X and provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant
  - **MAC-based authentication**
    authenticates the client with the RADIUS server based on the client's MAC address
- **Authentication flexibility**
  - **Multiple IEEE 802.1X users per port**
    provides authentication of multiple IEEE 802.1X users per port; prevents user "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
- **IEEE 802.1X, MAC or Web authentication**
  provides concurrent network access control and Web authentication of up to 24 clients per port
- **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
- **Custom banner**
  displays security policy when users log in to the switch
- **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
- **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**
  selectively configures broadcast control on heavy traffic port uplinks

Monitor and diagnostics

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

Warranty and support

- **Lifetime warranty**
  for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)†
- **Electronic and telephone support**
  limited electronic and telephone support is available from HP; to reach our support centers, refer to **www.hp.com/networking/contact-support**; for details on the duration of support provided with your product purchase, refer to **www.hp.com/networking/warrantysummary**
- **Software releases**
  to find software for your product, refer to **www.hp.com/networking/support**; for details on the software releases available with your product purchase, refer to **www.hp.com/networking/warrantysummary**

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

HP 2920 Switch Series

Specifications

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Ports	20 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	20 RJ-45 autosensing 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only
	4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)	4 RJ-45 dual-personality 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+)
	2 module slots	2 module slots
	1 Stacking module slot	1 Stacking module slot
	1 Dual-personality (RJ-45 or USB micro-B)	1 Dual-personality (RJ-45 or USB micro-B)
	1 USB 1.1	1 USB 1.1
	1 RJ-45 out-of-band management port	1 RJ-45 out-of-band management port
Power supplies	1 power supply slot 1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)	1 power supply slot 1 minimum power supply required includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)
Physical characteristics		
	17.42(w) x 13.23(d) x 1.75(h) in (44.25 x 33.6 x 4.45 cm) (1U height)	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)
Weight	11.57 lb (5.25 kg)	12.04 lb (5.46 kg)
Memory and processor		
	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash MB; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.5 MB Dynamic Egress + 4.5 MB Ingress)
Performance		
100 Mb Latency	< 9.0 µs (FIFO 64-byte packets)	< 9.0 µs (FIFO 64-byte packets)
1000 Mb Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.3 µs (FIFO 64-byte packets)
10 Gbps Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.3 µs (FIFO 64-byte packets)
Throughput	95.2 million pps	95.2 million pps
Switching capacity	128 Gbps	128 Gbps
Routing table size	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 57 dB, Pressure: 41.4 dB	Power: 61 dB, Pressure: 44.9 dB
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Silver	Silver
Maximum heat dissipation	198 BTU/hr (208.89 kJ/hr)	358 BTU/hr (377.69 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
Maximum power rating	58 W	475 W
Idle power	26 W	42 W
PoE power		370 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.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). 370 W of PoE+ power is available using the internal default power supply.
Safety	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1 :Second Edition ; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)
Standards and protocols (applies to all products in series)	**Denial of service protection** CPU DoS Protection **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 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 **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 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2236 IGMP Snooping RFC 2453 RIPv2 RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 3046 DHCP Relay Agent Information Option RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3576 Ext to RADIUS (CoA only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4675 RADIUS VLAN & Priority RFC 4861 Neighbor Discovery for IP version 6 (IPv6) RFC 4862 IPv6 Stateless Address Autoconfiguration UDLD (Uni-directional Link Detection) **IP multicast** RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 3376 IGMPv3 (host joins only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches **IPv6** RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 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 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 RFC 3810 MLDv2 (host joins only) RFC 4022 MIB for TCP RFC 4113 MIB for UDP RFC 4251 SSHv6 Architecture RFC 4252 SSHv6 Authentication RFC 4253 SSHv6 Transport Layer RFC 4254 SSHv6 Connection RFC 4293 MIB for IP RFC 4419 Key Exchange for SSH RFC 4443 ICMPv6 RFC 4541 IGMP & MLD Snooping Switch RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration **MIBs** IEEE 802.1ap (MSTP and STP MIB's only) 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 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 **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 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model VACM) 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 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting **Security** IEEE 802.1X Port Based Network Access Control IEEE 802.1X:Port-Based Network Access Control (2001) 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)

HP 2920 Switch Series

Specifications (continued)

	HP 2920-24G Switch (J9726A)	HP 2920-24G-PoE+ Switch (J9727A)	
Standards and protocols (applies to all products in series)	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

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Ports	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 RJ-45 dual-personality 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T) 2 module slots 1 Stacking module slot 1 Dual-personality (RJ-45 or USB micro-B) 1 USB 1.1 1 RJ-45 out-of-band management port	44 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 RJ-45 dual-personality 10/100/1000 PoE+ ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3at PoE+) 2 module slots 1 Stacking module slot 1 Dual-personality (RJ-45 or USB micro-B) 1 USB 1.1 1 RJ-45 out-of-band management port
Power supplies	1 power supply slot 1 minimum power supply required includes: 1 x J9739A (HP X331 165W 100-240VAC to 12VDC Modular Power Supply)	1 power supply slot 1 minimum power supply required includes: 1 x J9738A (HP X332 575W 100-240VAC to 54VDC Modular Power Supply)
Physical characteristics		
	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.4 cm) (1U height)	17.42(w) x 13.23(d) x 1.73(h) in (44.25 x 33.6 x 4.39 cm) (1U height)
Weight	11.95 lb (5.42 kg)	12.57 lb (5.7 kg)
Memory and processor		
	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)	Tri Core ARM1176 @ 625 MHz, 512 MB SDRAM, 1 GB flash; packet buffer size: 11.25 MB (6.75 MB Dynamic Egress + 4.5 MB Ingress)
Performance		
100 Mb Latency	< 9.0 µs (FIFO 64-byte packets)	< 9.0 µs (FIFO 64-byte packets)
1000 Mb Latency	< 3.3 µs (FIFO 64-byte packets)	< 3.2 µs (FIFO 64-byte packets)
10 Gbps Latency	< 3.2 µs (FIFO 64-byte packets)	< 3.2 µs (FIFO 64-byte packets)
Throughput	130.9 million pps	130.9 million pps
Switching capacity	176 Gbps	176 Gbps
Routing table size	2048 entries (IPv4), 256 entries (IPv6)	2048 entries (IPv4), 256 entries (IPv6)
MAC address table size	16000 entries	16000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95%, noncondensing	15% to 95%, noncondensing
Altitude	up to 10,000 ft (3 km)	up to 10,000 ft (3 km)
Acoustic	Power: 57 dB, Pressure: 41.8 dB	Power: 62 dB, Pressure: 45.2 dB
Electrical characteristics		
Frequency	50/60 Hz	50/60 Hz
80plus.org Certification	Silver	Silver
Maximum heat dissipation	239 BTU/hr (252.15 kJ/hr)	399 BTU/hr (420.95 kJ/hr)
Voltage	100-240 VAC	100-240 VAC
Maximum power rating	70 W	487 W
Idle power	27 W	46 W
PoE power		370 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.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the power supplied by the internal power supply. It is dependent on the type and quantity of power supplies and may be supplemented with the use of an external power supply (EPS). 370 W of PoE+ power is available using the internal default power supply.
Safety	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60825-1; IEC 60950-1, Second Edition; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1	CE Labeled; EN 60825-1 Safety of Laser Products-Part 1; FCC Part 15, Subpart B; GOST; EU RoHS Compliant; EN 55022 Class A; EN 55024: 1998; C-Tick; ICES-003, Class A; VCCI Class A; IEC 60950-1 :Second Edition ; IEC 60825-1; EN62479:2010; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1 (ed.2): am1

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC part 15 Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11
Harmonics	IEC 61000-3-2	IEC 61000-3-2
Flicker	IEC 61000-3-3	IEC 61000-3-3
Management	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)	HP PCM+; IMC - Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; out-of-band management (serial RS-232C or Micro USB)
Services	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at **www.hp.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)	HP 2920-48G-PoE+ Switch (J9729A)
Standards and protocols (applies to all products in series)	**Denial of service protection** CPU DoS Protection **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 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 **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 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2236 IGMP Snooping RFC 2453 RIPv2 RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2866 RADIUS Accounting RFC 3046 DHCP Relay Agent Information Option RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3414 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) RFC 3416 Protocol Operations for SNMP RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3576 Ext to RADIUS (CoA only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches RFC 4675 RADIUS VLAN & Priority RFC 4861 Neighbor Discovery for IP version 6 (IPv6) RFC 4862 IPv6 Stateless Address Autoconfiguration UDLD (Uni-directional Link Detection) **IP multicast** RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 3376 IGMPv3 (host joins only) RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches **IPv6** RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 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 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 RFC 3810 MLDv2 (host joins only) RFC 4022 MIB for TCP RFC 4113 MIB for UDP RFC 4251 SSHv6 Architecture RFC 4252 SSHv6 Authentication RFC 4253 SSHv6 Transport Layer RFC 4254 SSHv6 Connection RFC 4293 MIB for IP RFC 4419 Key Exchange for SSH RFC 4443 ICMPv6 RFC 4541 IGMP & MLD Snooping Switch RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration **MIBs** IEEE 802.1ap (MSTP and STP MIB's only) 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 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 **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 SNMPv3 Message Processing RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3415 SNMPv3 View-based Access Control Model VACM) 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 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting **Security** IEEE 802.1X Port Based Network Access Control IEEE 802.1X:Port-Based Network Access Control (2001) 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)

HP 2920 Switch Series

Specifications (continued)

	HP 2920-48G Switch (J9728A)		HP 2920-48G-PoE+ Switch (J9729A)	
Standards and protocols (applies to all products in series)	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	

HP 2920 Switch Series accessories

Modules

NEW HP 2920 2-Port 10GbE SFP+ Module (J9731A)

NEW HP 2920 2-port 10GBASE-T Module (J9732A)

NEW HP 2920 2-Port Stacking module (J9733A)

Transceivers

HP X121 1G SFP LC SX Transceiver (J4858C)

HP X121 1G SFP LC LX Transceiver (J4859C)

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

HP X122 1G SFP LC BX-U Transceiver (J9143B)

HP X121 1G SFP LC LH Transceiver (J4860C)

HP X121 1G SFP RJ45 T Transceiver (J8177C)

HP X111 100M SFP LC FX Transceiver (J9054C)

HP X112 100M SFP LC BX-D Transceiver (J9099B)

HP X112 100M SFP LC BX-U Transceiver (J9100B)

HP X132 10G SFP+ LC SR Transceiver (J9150A)

HP X132 10G SFP+ LC LR Transceiver (J9151A)

HP X132 10G SFP+ LC LRM Transceiver (J9152A)

HP X132 10G SFP+ LC ER Transceiver (J9153A)

HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)

HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)

HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)

HP X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable (J9286B)

HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable (J9287B)

HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A)

HP X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9301A)

HP X244 10G XFP to SFP+ 5m Direct Attach Copper Cable (J9302A)

Cables

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

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

HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)

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

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

HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)

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

HP 0.5 m PremierFlex OM3+ LC/LC Optical Cable (BK837A)

HP 1 m PremierFlex OM3+ LC/LC Optical Cable (BK838A)

HP 2 m PremierFlex OM3+ LC/LC Optical Cable (BK839A)

HP 5 m PremierFlex OM3+ LC/LC Optical Cable (BK840A)

HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A)

HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A)

HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A)

NEW HP 2920 0.5m Stacking Cable (J9734A)

NEW HP 2920 1.0m Stacking Cable (J9735A)

NEW HP 2920 3.0m Stacking Cable (J9736A)

Mounting Kit

HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)

HP 2920-24G Switch (J9726A)

NEW HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)

HP 2920-24G-PoE+ Switch (J9727A)

NEW HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A)

HP 2920-48G Switch (J9728A)

NEW HP X331 165W 100-240VAC to 12VDC Modular Power Supply (J9739A)

HP 2920-48G-PoE+ Switch (J9729A)

NEW HP X332 575W 100-240VAC to 54VDC Modular Power Supply (J9738A)

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