Datasheet

HP ProCurve Switch 2900 Series

The HP ProCurve Switch 2900 Series consists of two switches: the HP ProCurve Switch 2900-24G with 24 10/100/1000 ports and the HP ProCurve Switch 2900-48G with 48 10/100/1000 ports. Both have four dual-personality ports for 10/100/1000 or mini-GBIC connectivity. In addition, by including four integrated 10-Gigabit Ethernet ports (two CX4 and two X2), the 2900 series offers the most flexible and easy-to-deploy stacking and uplinks in its class. Together with static routing, robust security and management features, free lifetime warranty, and free software updates, the 2900 series is a cost-effective, future-proof solution for customers who are building high-performance networks.
HP ProCurve Switch 2900 Series

Features and benefits

Industry-leading warranty

Management

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **sFlow (RFC 3176):** provides scalable, ASIC-based, wire-speed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications
- **RMON and XRMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail
- **Friendly port names:** allow assignment of descriptive names to ports
- **Dual flash images:** provides independent primary and secondary OS files for backup while upgrading
- **Find-Fix-and-Inform:** finds and fixes common network problems automatically, then informs administrator
- **Uni-Directional Link Detection (UDLD):** monitors cable between two switches and shuts down the ports on both ends if the cable is broken turning the bi-directional link into uni-directional; this prevents network problems such as loops

Connectivity

NEW IPv6:
- **IPv6 host:** the switches can 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
- **Plug-and-play 10 Gbps Ethernet for stacking and uplink:** four integrated 10-GbE ports (two CX4 and two X2) built in on the switch
- **Dual-personality functionality:** four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, -LH, or 100-FX
- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the HP ProCurve Switch 2500 Series, 2510 Series, 2600 Series, 2800 Series, 2810 Series, 2900 Series, 3400cl Series, 3500yl Series, 4200vl Series, 6108, 6200yl-24G-mGBIC, and 6400cl Series
- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

Performance

- **High-performance architecture:** 105.6 Gbps switching fabric with up to 75.7 million pps (switch 2900-24G) and 153.6 Gbps switching fabric with up to 111.5 million pps (switch 2900-48G)
- **Selectable queue configurations:** increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

Resiliency and high availability

- **IEEE 802.3ad Link Aggregation Protocol (LACP) and ProCurve trunking:** support up to 24 trunks, each with up to 8 links (ports) per trunk
- **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

Layer 2 switching

- **VLAN support and tagging:** supports the IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously

For as long as you own the product, with next-business-day advance replacement (available in most countries). The following hardware products and their related series modules have a one-year hardware warranty with extensions available: HP ProCurve Routing Switch 9300m Series, HP ProCurve Switch 8100fl Series, and HP ProCurve Network Access Controller 800. The following hardware mobility products have a one-year hardware warranty with extensions available: HP ProCurve M111 Client Bridge, HP ProCurve MSM3xx-R Access Points, HP ProCurve MSM7xx Mobility and Access Controllers, HP ProCurve RF Manager IDS/IP Systems, HP ProCurve MSM Power Supplies, HP ProCurve 1-Port Power Injector, and HP ProCurve CNMS Appliances. Disk drives in the HP ProCurve ONE Services 21 Modules have a five-year hardware warranty. Standalone software, upgrades, or licenses may have a different warranty duration. For details, refer to the ProCurve Software License, Warranty, and Support booklet at http://www.procurve.com/warranty.
HP ProCurve Switch 2900 Series

- **GARP VLAN Registration Protocol**: allows automatic learning and dynamic assignment of VLANs
- **Jumbo frames**: on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services

**Layer 3 routing**
- **Static IP routing**: provides manually configured routing; includes ECMP capability
- **RIP**: provides RIPv1 and RIPv2 routing

**Security**

**NEW USB Secure Autorun (requires HP ProCurve Manager Plus)**: deploys, diagnoses, and updates switch using USB flash drive; works with secure credential to prevent tampering
- **Port security**: allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **MAC address lockout**: prevents configured particular MAC addresses from connecting to the network
- **Multiple user authentication methods**:
  - **IEEE 802.1X**: industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
  - **Web-based authentication**: authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server
  - **MAC-based authentication**: client is authenticated with the RADIUS server based on client's MAC address
- **Authentication flexibility**:
  - **Multiple IEEE 802.1X users per port**: provides authentication of up to eight IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
  - **Concurrent IEEE 802.1X and Web or MAC authentication schemes per port**: switch port will accept any of IEEE 802.1X and either Web or MAC authentications
- **STP BPDU port protection**: blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- **Source-port filtering**: allows only specified ports to communicate with each other
- **Secure FTP**: allows secure file transfer to/from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file
- **RADIUS/TACACS+**: eases switch management security administration by using a password authentication server
- **Secure Shell (SSHv2)**: encrypts all transmitted data for secure, remote command-line interface (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
- **Switch management logon security**: can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **Custom banner**: displays security policy when users log in to the switch

**Convergence**
- **IP multicast snooping (data-driven IGMP)**: automatically prevents flooding of IP multicast traffic
- **LLDP-MED (Media Endpoint Discovery)**: a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **Software updates**: free downloads from the Web

**Quality of Service (QoS)**
- **Traffic prioritization (IEEE 802.1p)**: allows real-time traffic classification into eight priority levels mapped to eight queues
- **Class of Service (CoS)**: sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ
- **Layer 4 prioritization**: enables prioritization based on TCP/UDP port numbers

**Warranty and support**
- **ProCurve Lifetime Warranty**: for as long as you own the product, with next-business-day advance replacement (available in most countries).
- **Electronic and telephone support**: limited electronic and telephone support is available from HP. Refer to the HP Web site at www.procurve.com/support for details on the support provided and the period during which support is available.
- **Software releases**: refer to the HP Web site at www.procurve.com/support for details on the software releases provided and the period during which software releases are available.
# HP ProCurve Switch 2900 Series

## Specifications

### HP ProCurve Switch 2900-24G_PL (J9049A_PL)

#### Ports

- 20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-TX); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only
- 2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only
- 2 open 10-GbE X2 transceiver slots
- 1 RS-232C DB-9 console port
- 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)

#### Physical characteristics

- **Dimensions**: 15.43(d) x 17.44(w) x 1.73(h) in. (39.2 x 44.3 x 4.4 cm) (1U height)
- **Weight**: 14.11 lb. (6.3 kg)

#### Memory and processor

- **Processor**: Freescale PowerPC 8540 @ 667 MHz, 4 MB flash; packet buffer size: 13.5 MB

#### Mounting

- Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only.

#### Performance

- **1000 Mb Latency**: < 3.7 µs (FIFO 64-byte packets)
- **10 Gbps Latency**: < 2.1 µs (FIFO 64-byte packets)
- **Throughput**: up to 75.7 million pps (64-byte packets)
- **Routing/Switching capacity**: 101.8 Gbps
- **Switch fabric speed**: 105.6 Gbps
- **Routing table size**: 2000 entries
- **MAC address table size**: 64000 entries

#### Environment

- **Operating temperature**: 32°F to 131°F (0°C to 55°C); 32°F to 104°F (0° to 40°C) when using any X2 optic or transceiver
- **Operating relative humidity**: 15% to 95% @ 104°F (40°C), non-condensing
- **Non-operating/Storage temperature**: -40°F to 158°F (-40°C to 70°C)
- **Non-operating/Storage relative humidity**: 15% to 90% @ 149°F (65°C), non-condensing
- **Altitude**: up to 15000 ft. (4.6 km)
- **Acoustic**: Power: 49.3 dB; DIN 45635T.19 per ISO 7779

#### Electrical characteristics

- **Description**: The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
- **Maximum heat dissipation**: 683 BTU/hr (721 kJ/hr)

### HP ProCurve Switch 2900-48G_PL (J9050A_PL)

#### Ports

- 44 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only
- 2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only
- 2 open 10-GbE X2 transceiver slots
- 1 RS-232C DB-9 console port
- 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)

#### Physical characteristics

- **Dimensions**: 16.93(d) x 17.44(w) x 1.73(h) in. (43.0 x 44.3 x 4.4 cm) (1U height)
- **Weight**: 15.43 lb. (7 kg)

#### Memory and processor

- **Processor**: Freescale PowerPC 8540 @ 667 MHz, 4 MB flash; packet buffer size: 22.5 MB

#### Mounting

- Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only.

#### Performance

- **1000 Mb Latency**: < 3.7 µs (FIFO 64-byte packets)
- **10 Gbps Latency**: < 2.1 µs (FIFO 64-byte packets)
- **Throughput**: up to 111.5 million pps
- **Routing/Switching capacity**: 149.8 Gbps
- **Switch fabric speed**: 153.6 Gbps
- **Routing table size**: 2000 entries
- **MAC address table size**: 64000 entries

#### Environment

- **Operating temperature**: 32°F to 131°F (0°C to 55°C); 32°F to 104°F (0° to 40°C) when using any X2 optic or transceiver
- **Operating relative humidity**: 15% to 95% @ 104°F (40°C), non-condensing
- **Non-operating/Storage temperature**: -40°F to 158°F (-40°C to 70°C)
- **Non-operating/Storage relative humidity**: 15% to 90% @ 149°F (65°C), non-condensing
- **Altitude**: up to 15000 ft. (4.6 km)
- **Acoustic**: Power: 52 dB; DIN 45635T.19 per ISO 7779

#### Electrical characteristics

- **Description**: The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
- **Maximum heat dissipation**: 683 BTU/hr (721 kJ/hr)
## HP ProCurve Switch 2900 Series

<table>
<thead>
<tr>
<th>Voltage</th>
<th>100-127 / 200-240 VAC</th>
<th>100-127 / 200-240 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>4.0 / 2.0 A</td>
<td>4.0 / 2.0 A</td>
</tr>
<tr>
<td>Power consumption</td>
<td>200 W</td>
<td>200 W</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 / 60 Hz</td>
<td>50 / 60 Hz</td>
</tr>
</tbody>
</table>

### Notes
- Maximum power rating is the worst-case theoretical maximum power number with fully loaded PoE, 100% traffic, all ports plugged in, and all modules populated.

### Safety
- CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
- CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950

### Emissions
- FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
- FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A

### Immunity
- **EN**
  - EN 55024, CISPR 24
- **ESD**
  - IEC 61000-4-2; 4 kV CD, 8 kV AD
- **Radiated**
  - IEC 61000-4-3; 3 V/m
- **EFT/Burst**
  - IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
- **Surge**
  - IEC 61000-4-5; 1 kV/2 kV AC
- **Conducted**
  - IEC 61000-4-6; 3 V
- **Power frequency magnetic field**
  - IEC 61000-4-8; 1 A/m, 50 or 60 Hz
- **Voltage dips and interruptions**
  - IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
- **Harmonics**
  - EN 61000-3-2, IEC 61000-3-2
- **Flicker**
  - EN 61000-3-3, IEC 61000-3-3

### Management
- HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)

### Notes
- One 0.5 m 10-GbE CX4 cable is included.
- When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.
- HP ProCurve 10-GbE CX4 Media Converter (J8439A) can be used only with the two fixed CX4 ports.

### Services
HP ProCurve Switch 2900 Series

3-year, 4-hour onsite, 13x5 coverage for hardware (U2855E)
3-year, 4-hour onsite, 24x7 coverage for hardware (U2856E)
3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304E)
3-year, 24x7 SW phone support, software updates (UE262E)
Installation with minimum configuration, system-based pricing (U4826E)
Installation with HP-provided configuration, system-based pricing (U4830E)

Refer to the HP Web site at www.procurve.com/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.

3-year, 4-hour onsite, 13x5 coverage for hardware (H4496E)
3-year, 4-hour onsite, 24x7 coverage for hardware (H2893E)
3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319E)
3-year, 24x7 SW phone support, software updates (UE264E)
Installation with minimum configuration, system-based pricing (U4826E)
Installation with HP-provided configuration, system-based pricing (U4830E)

Refer to the HP Web site at www.procurve.com/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.

## Standards and protocols

### Device management
- RFC 1591 DNS (client)
- HTML and telnet management

### General protocols
- IEEE 802.1D MAC Bridges
- IEEE 802.1p Priority
- IEEE 802.1Q VLANs
- IEEE 802.1s Multiple Spanning Trees
- IEEE 802.1v VLAN classification by Protocol and Port
- IEEE 802.1w Rapid Reconfiguration of Spanning Tree
- IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- IEEE 802.3x Flow Control
- RFC 768 UDP
- RFC 783 TFTP Protocol (revision 2)
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 TELNET
- RFC 886 Time Protocol
- RFC 951 BOOTP
- RFC 1058 RIPv1
- RFC 1350 TFTP Protocol (revision 2)
- RFC 2030 Simple Network Time Protocol (SNTP) v4
- RFC 2453 RIPv2
- RFC 3046 DHCP Relay Agent Information Option

### IP multicast
- RFC 3376 IGMPv3

### IPv6
- RFC 1981 IPv6 Path MTU Discovery
- RFC 2460 IPv6 Specification
- RFC 2710 Multicast Listener Discovery (MLD) for IPv6
- RFC 2925 Remote Operations MIB (Ping only)
- RFC 3019 MLDv1 MIB
- RFC 3315 DHCPv6 (client only)
- 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 4411 Key Exchange for SSH
- RFC 4443 ICMPv6
- RFC 4541 IGMP & MLD Snooping Switch
- RFC 4881 IPv6 Neighbor Discovery
- RFC 4862 IPv6 Stateless Address Auto-configuration

### MIBs
- RFC 1213 MIB II
- RFC 1493 Bridge MIB
- RFC 1724 RIPv2 MIB
- RFC 2021 RMON2 MIB
- RFC 2618 RADIUS Client MIB
- RFC 2620 RADIUS Accounting MIB

### Network management
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- RFC 1981 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
- RFC 3176 sFlow
- ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
- SNMPv1/v2c/v3
- XRMON

### QoS/Cos
- RFC 2474 DiffServ Precedence, including 8 queues/port
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2598 DiffServ Expedited Forwarding (EF)

### Security
- IEEE 802.1X Port Based Network Access Control
- RFC 1492 TACACS+
- RFC 2136 RADIUS Authentication
- RFC 2686 RADIUS Accounting
- Secure Sockets Layer (SSL)
- SSHv1/SSHv2 Secure Shell
HP ProCurve Switch 2900 Series accessories

HP ProCurve 620 Redundant/External Power Supply (J8696A)
HP ProCurve 100-FX SFP-LC Transceiver (J9054B)
NEW HP ProCurve 100-BX-D SFP-LC Transceiver (J9099B)
NEW HP ProCurve 100-BX-U SFP-LC Transceiver (J9100B)
HP ProCurve Gigabit-SX-LC Mini-GBIC (J4858C)
HP ProCurve Gigabit-LX-LC Mini-GBIC (J4859C)
HP ProCurve Gigabit-LH-LC Mini-GBIC (J4860C)
NEW HP ProCurve 1000-BX-D SFP-LC Mini-GBIC (J9142B)
NEW HP ProCurve 1000-BX-U SFP-LC Mini-GBIC (J9143B)
HP ProCurve 10-GbE X2-SC SR Optic (J8436A)

NEW HP ProCurve 10-GbE X2-SC LRM Optic (J9144A)
HP ProCurve 10-GbE X2-SC LR Optic (J8437A)
HP ProCurve 10-GbE X2-SC ER Optic (J8438A)
HP ProCurve 10-GbE X2-CX4 Transceiver (J8440B)
HP ProCurve 10-GbE CX4 Media Converter (J8439A)
HP ProCurve Manager 2.3 (-)

For more information
To learn more about HP ProCurve Networking, please visit ProCurve.com

© 2008 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. January 2009