**ProCurve Networking**
HP Innovation
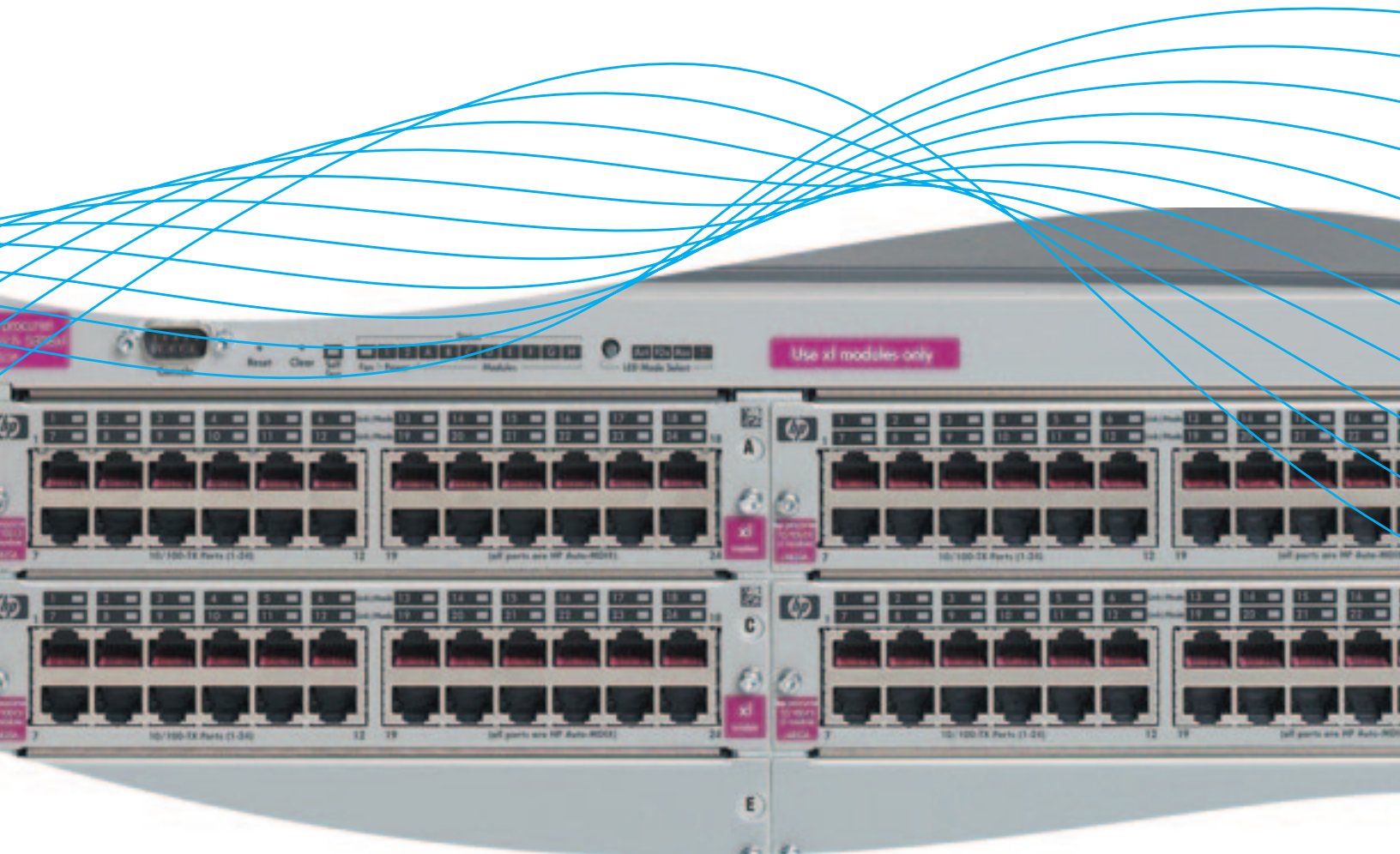
ProCurve Networking by HP

# Data Sheets

Use xl modules only

*hp* invent

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# Why ProCurve Networking by HP?

**Because we offer more of everything you need from a networking vendor.**

**More value** ProCurve solutions may not only save you money in the most obvious way (they're often substantially less expensive than competitor offerings), they may also save you money in a number of not-so-obvious ways. Because ProCurve solutions are easy to manage, they require less time from your IT staff. Because they're built on open standards, they protect your existing networking investments. And because they are easy to upgrade, you can focus on more important business opportunities.

**More security** ProCurve technology helps overcome the limitations of centralized, host-based security by adding critical access enforcement to the network edge, where traffic enters and users connect with applications. This fundamental shift from core-based security architecture can improve security throughout your network.

**More open** For years ProCurve has led the drive to establish open industry standards by creating and contributing technologies to the public domain, as well as participating in and leading groups dedicated to the cause. Because our solutions are based on these open standards, they are far more versatile, less costly, and less complex than comparable proprietary products and architectures.

**More intelligent** The ProCurve Networking Adaptive EDGE Architecture™ is a unique design strategy that creates a secure, mobile, multi-service network by placing intelligence at the edge—where users connect and policies are enforced. This innovative approach creates a dynamic network infrastructure designed to keep up with advancing technology and user needs while protecting your business investments.

**More reliable** ProCurve Networking solutions create and support highly reliable enterprise networking environments. With more than 25 years of experience designing, installing, and supporting IT networks around the world, we have established an extremely successful track record and an enviable list of satisfied customers. We're so confident in the reliability of our products that we've backed a majority of our portfolio with a lifetime warranty.

**More support** Included in the cost of all ProCurve products are free design center services to help you configure your network up-front. Plus, we provide phone and e-mail support in case basic questions arise after ProCurve products or solutions are installed. In addition, we offer a wide variety of fee-based packaged services to fit your business needs.

**More experience** ProCurve has been a leader in the networking infrastructure business for more than a quarter century, and today is the #2 networking vendor worldwide in terms of ports shipped annually, according to the Dell'Oro Group*. We're recognized worldwide for our legendary quality and commitment to our customers.

*ProCurve Networking is #2 in port shipments for 2003 among all tracked competitors in North America, Europe, the Middle East, and Africa, according to Dell'Oro Group's Q4 '03 Ethernet Switch Report.

# ProCurve Networking Product Portfolio

## Layer 3 and 4+
**Managed chassis**

**ProCurve Routing Switch 9315m (J4874A)**
- 10/100/1000/10 Gigabit
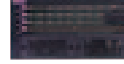- 15 open module slots for up to 28 10GbE, 232 Gigabit, or 672 10/100 ports

**ProCurve Routing Switch 9308m (J4138A)**
- 10/100/1000/10 Gigabit
- 8 open module slots for up to 14 10GbE, 120 Gigabit, or 336 10/100 ports

**ProCurve Routing Switch 9304m (J4139A)**
- 10/100/1000/10 Gigabit
- 4 open module slots for up to 6 10GbE, 56 Gigabit, or 144 10/100 ports

## Layer 2, 3, and 4
**Managed chassis**

**ProCurve Switch 5308xl-48G (J8167A)**
- 42 10/100/1000 ports
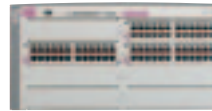- 6 dual-personality ports
- 5 open module slots

**ProCurve Switch 5304xl-32G (J8166A)**
- 28 10/100/1000 ports
- 4 dual-personality ports
- 2 open module slots

**ProCurve Switch 5372xl (J4848A)**
- 72 10/100 ports
- 5 open module slots

**ProCurve Switch 5308xl (J4819A)**
- Same chassis as 5372xl
- 8 open module slots

**ProCurve Switch 5348xl (J4849A)**
- 48 10/100 ports
- 2 open module slots

**ProCurve Switch 5304xl (J4850A)**
- Same chassis as 5348xl
- 4 open module slots

**Managed stackables**

**NEW** **ProCurve Switch 3400cl-24G (J4905A)**
- 20 10/100/1000 ports
- 4 dual-personality ports
- 1 open module slot

**NEW** **ProCurve Switch 3400cl-48G (J4906A)**
- 44 10/100/1000 ports
- 4 dual-personality ports
- 1 open module slot

## Layer 2 and 3*
**Managed chassis**

**ProCurve Switch 4160gl (J8152A)**
- 60 10/100/1000 ports
- 6 mini-GBIC slots
- 5 open module slots

**ProCurve Switch 4108gl (J4865A)**
- Same chassis as the 4160gl
- 8 open module slots

**ProCurve Switch 4140gl (J8151A)**
- 40 10/100/1000 ports
- 4 mini-GBIC slots
- 2 open module slots

**ProCurve Switch 4104gl (J4887A)**
- Same chassis as the 4140gl
- 4 open module slots

**ProCurve Switch 4108gl Bundle (J4861A)**
- 192 10/100 ports
- 3 open transceiver slots
- 4 open module slots
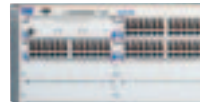
**ProCurve Switch 4148gl (J4888A)**
- 96 10/100 ports
- 2 open module slots

**Managed stackables**

**ProCurve Switch 2848 (J4904A)**
- 44 10/100/1000 ports
- 4 dual-personality ports

**ProCurve Switch 2824 (J4903A)**
- 20 10/100/1000 ports
- 4 dual-personality ports

**ProCurve Switch 2650 (J4899A)**
- 48 10/100 ports
- 2 dual-personality ports

**ProCurve Switch 2626 (J4900A)**
- 24 10/100 ports
- 2 dual-personality ports

**ProCurve Switch 6108 (J4902A)**
- 6 10/100/1000 ports
- 2 dual-personality ports

**Power over Ethernet**

**ProCurve Switch 2650-PWR (J8165A)**
- 48 10/100 ports
- 2 dual-personality ports
- IEEE 802.3af compliant for PoE

**ProCurve Switch 2626-PWR (J8164A)**
- 24 10/100 ports
- 2 dual-personality ports
- IEEE 802.3af compliant for PoE

\* Basic IP routing

## Layer 2
**Managed chassis and managed stackables**

**ProCurve Switch 2524 (J4813A)**
- 24 10/100 ports
- 2 open transceiver slots

**ProCurve Switch 2512 (J4812A)**
- 12 10/100 ports
- 2 open transceiver slots

**ProCurve Switch 4000m (J4121A)**
- 40 10/100 ports
- 5 open module slots
- 10/100/1000 flexibility

**ProCurve Switch 8000m (J4110A)**
- Same chassis as 4000m
- 10 open module slots

Actual product appearance may differ slightly. Some products are shown with optional transceivers or modules installed.

## Layer 2
**Unmanaged stackables**

**ProCurve Switch 2724 (J4897A)**
- 24 10/100/1000 ports

**ProCurve Switch 2324 (J4818A)**
- 24 10/100 ports
- 2 open transceiver slots

**ProCurve Switch 2708 (J4898A)**
- 8 10/100/1000 ports

**ProCurve Switch 2312 (J4817A)**
- 12 10/100 ports
- 2 open transceiver slots

**ProCurve Switch 2124 (J4868A)**
- 24 10/100 ports
- 1 open transceiver slot

**ProCurve Switch 408 (J4097B)**
- 8 10/100 ports

## Mobile LAN products
**Access points**

**ProCurve Wireless Access Point 520wl (J8133A)**

- 802.1X port-based access control
- 16 VLANs and SSID support
- Simultaneously supports 802.11 b/g and a**
- Unauthorized access point detection
- Wi-Fi Protected Access™

**Requires a ProCurve 150wl, 160wl, or 170wl card (ordered separately)

**ProCurve Wireless Access Point 420 (J8130A/J8131A)**

- 802.1X port-based access control
- 802.1Q-compliant, supports up to 64 VLANs
- IEEE 802.11g single-radio design
- IEEE 802.3af Power over Ethernet
- Wi-Fi Protected Access™

## Secure access

**ProCurve Access Controller 720wl (J8153A)**
- Secure, scalable connectivity between wireless clients and wired network
- Enforces authentication, access rights, and data encryption
- Up to 12 wireless access points
- Used with the 740wl or 760wl

**ProCurve Access Control Server 740wl (J8154A)**
- Centralized security configuration and user policy management
- Secure uninterrupted subnet roaming
- Supports thousands of wireless users within a domain
- Used with the 720wl

**ProCurve Integrated Access Manager 760wl (J8155A)**
- For smaller networks or remote offices
- Combines functionality of 720wl and 740wl
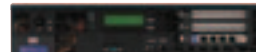
## External access point antennas

**ProCurve 5 dBi Indoor/Outdoor Omnidirectional Antenna (J8441A)**
- Enables campus-wide indoor/outdoor coverage

**ProCurve 2 dBi Indoor Omnidirectional Diversity Antenna (J8442A)**
- Two separate 2 dBi omnidirectional elements
- Supports installation in the plenum or above a ceiling

**ProCurve 7 dBi Indoor/Outdoor Directional Antenna (J8443A)**
- Designed for minimal visual impact
- Flexible installation for precise control of radio signal characteristics

**ProCurve 8 dBi Outdoor Omnidirectional Antenna (J8444A)**
- 360-degree coverage for outdoor wireless LAN campus applications

**ProCurve 6.5 dBi Indoor/Outdoor Directional Diversity Antenna (J8445A)**
- Flexible installation for precise control of radio signal characteristics
- Two patch antennas in same enclosure

**ProCurve 11 dBi Indoor/Outdoor Wide Angle Directional Antenna (J8446A)**
- Ideal for outdoor campus and indoor lecture halls
- Meets indoor aesthetics requirements yet can withstand harsh outdoor environments

**ProCurve MC-Card to R-SMA Cable (J8447A)**
- Adapts R-SMA fitted antennas to ProCurve Access Point 520wl

**ProCurve 14 dBi Yagi Antenna (J8448A)**
- High gain directional antenna for deploying 2.4 GHz point-to-point wireless bridging
- Can be used for long narrow coverage environments

## ProCurve software

**ProCurve Manager**
- Included in-box with all manageable devices
- A Windows®-based network management solution

**ProCurve Manager Plus 1.6 (J8172B)**
- A complete, Windows-based network management solution with OpenView NNM integration features
- Available as an upgrade for ProCurve Manager
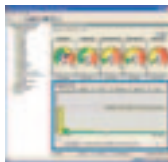
**NEW** **ProCurve Identity Driven Manager 1.0 (J8477A)**
- A module add-on application for PCM+
- Dynamically applies security and performance settings to network devices
- Requires PCM+ 1.6
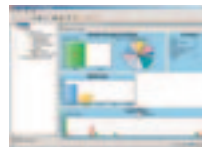
**ProCurve Access Control Client Software 25 (J8449A)**
**ProCurve Access Control Client Software 500 (J8469A)**
**ProCurve Access Control Client Software 5000 (J8470A)**
**ProCurve Access Control Client Software 25000 (J8468A)**
Multi-platform client software that securely authenticates users to the network
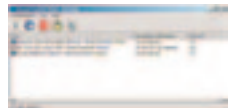
## Services and support

**Industry-leading warranty**
- Lifetime coverage*** with next-business-day advance replacement in most locations

**Worldwide telephone assistance**
- Free telephone support during HP business hours

**Web support**
- Free software updates
- Proactive e-mail notification of software releases
- Free technical product support via e-mail

**ProCurve Networking Design Center**
- Free comprehensive network design and configuration services

**Service contracts**
- Multivendor network support
- Network environment support
- Network fault isolation

**Care Packs**
- Onsite service
- 24x7 phone support
- Installation and configuration
- Warranty extensions
- Post-warranty services

**Reseller services**
- ProCurve Networking Service Advantage Partners

*** The ProCurve Routing Switch 9300m series and ProCurve Secure Access 700wl series have a 1-year warranty with extensions available.

5

# ProCurve Networking Helps You
# Get More From Your Network

| | |
|---|---|
| **Superior return on IT**<br>Price/Performance<br>leadership | • High-performance, no-compromise functionality at affordable prices<br>• Adaptive EDGE Architecture maximizes current infrastructure<br>• Industry-leading warranty programs: ProCurve extends the life of our solutions by providing superior protection |
| **Reduced complexity**<br>Proactive networking,<br>focused innovation | • Plug & Play, hot-swappable components<br>• Policy-based management: ProCurve products leverage the capabilities of HP OpenView management software<br>• Free network design services through ProCurve Networking Design Centers<br>• Find-Fix-and-Inform: ProCurve products feature embedded intelligence to proactively diagnose and resolve many common network problems |
| **Trusted security**<br>Secure solutions<br>from a trusted partner | • 802.1X technology: HP led this industry-standard initiative for affordable security<br>• Web-based authentication: Enables robust security without requiring client software<br>• Multiple secure domains (VLANs): Boost security by isolating and controlling network segments |
| **Proven reliability**<br>Highly available,<br>legendary HP quality | • The best service and support in the industry<br>• Rigorous pre-release quality testing and quality assurance<br>• The best overall warranty program in the industry |
| **Choice and flexibility**<br>Industry-standard<br>solutions | • Tradition of leadership in the development of open standards<br>• Multivendor product and solution testing ensures interoperability<br>• Built for the future: ProCurve solutions rest on a flexible, scalable architecture that meets changing business needs for security, mobility, and convergence |

# ProCurve Switches

# ProCurve Routing Switch 9300m Series

The ProCurve Routing Switch 9300m series delivers a new
level of high-performance capabilities and investment protection
for medium and large enterprise networks. By providing high-
performance throughput from the wiring closet into the data
center and out to the edge of the WAN, the ProCurve 9300m
series' non-blocking architecture enables network managers
to build scalable and highly available network designs.

ProCurve Routing Switch 9304m
(J4139A)

ProCurve Routing Switch 9308m
(J4138A)

ProCurve Routing Switch 9315m
(J4874A)

# ProCurve Routing Switch 9300m Series

## Features and benefits

- **Enhanced Performance (EP) technology:**
  - **Extended port density:** to enhance system capabilities and overall investment protection
  - **sFlow:** (RFC 3176) wire-speed traffic accounting and monitoring
  - **Jumbo frames:** on Gigabit and 10 Gigabit ports allow high-performance remote backup and disaster recovery services
  - **Increased on-board memory and flash capacity:** for more robust management capabilities

- **10 Gigabit Ethernet (10GbE):** simplify data center configurations and increase backbone throughput

- **T-Flow traffic management:** simultaneously process access control lists (ACLs), perform policy-based routing (PBR), perform network address translation (NAT), and collect and export statistics for NetFlow-based accounting and billing, all at wire speed

- **Up to 345 million pps performance:** provides the high performance required by large networks

- **Layer 4 prioritization:** delivers QoS (quality of service) for delay-sensitive applications

- **IP/IPX/AppleTalk routing:** provides routing of IP and IPX at media speed

- **IP multicast routing:** provides IGMPv3,* DVMRP, PIM-dense, PIM-sparse, and PIM snooping mode support in routed environments to control multicast traffic

- **Unparalleled security:** protection against denial-of-service attacks; Secure Shell v2, Secure Sockets Layer (SSL), Secure Copy, wire-speed rate limiting, and user authentication (with AAA, RADIUS, and TACACS+) prevent unauthorized network access and associated downtime

- **Policy-based VLANs:** allow you to assign VLANs on a port, protocol, subnet, or IEEE 802.1Q tagged basis

- **Hardware-based wire-speed access control lists:** feature-rich ACL implementation (selective ACL logging, scalability, and syntax compatibility) with enhanced editing capabilities* ensure high levels of security and ease of administration without impacting network performance

- **Dynamic IP ACLs and MAC filters:** provide an additional level of security via dynamic port configuration to 802.1X ports based on user profile information sent by the Authentication Server

- **Port trunking:** for higher switch-to-switch and switch-to-server throughput and link-level redundancy, with support for standards-based link aggregation (IEEE 802.3ad)

- **Next-generation Spanning Tree functionality:** single-instance STP, Per VLAN Spanning Tree (PVST), Per VLAN Group STP (PVGST), and Rapid Spanning Tree Protocol based on IEEE 802.1w all provide improved availability and scalability for Spanning Tree-based networks

- **Software updates:** free downloads from the Web

- **Optional redundant power supply:** provides uninterrupted power for high availability

- **Hot-swappable chassis modules:** allow you to swap modules without interrupting the network

- **Automatic routing switch failover:** provides hot standby redundancy using standards-based VRRP (Virtual Router Redundancy Protocol) or SRP (Standby Routing Protocol)

# ProCurve Routing Switch 9300m Series

## Features and benefits (continued)

- **Optional redundant management:** provides automatic failover from the active management module to the standby management module for high availability

- **Full-featured console:** provides complete control of the switch with a familiar command line interface (CLI)

- **Web interface:** allows you to configure the switch from any Web browser on the network

- **Industry-leading warranty:** one-year next-business-day advance replacement (available in most countries) with extensions available

## Services

**ProCurve Routing Switch 9304m**

- 3-year, parts only, global next-day advance exchange (UA120A/E)

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H2887A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H2888A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U2865A/E)

- 1-year, post-warranty, parts only, global next-day advance exchange (H7639PA/PE)

- 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (H2738PA/PE)

- 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (U2866PA/PE)

- 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UA423PA/PE)

- Installation with minimum configuration, system-based pricing (U4829A/E)

- Installation with HP-provided configuration, system-based pricing (U4833A/E)

**ProCurve Routing Switch 9308m and ProCurve Routing Switch 9315m**

- 3-year, parts only, global next-day advance exchange (UA121A/E)

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H2885A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H2886A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U2867A/E)

- 1-year, post-warranty, parts only, global next-day advance exchange (H7640PA/PE)

- 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (H2739PA/PE)

- 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (U2868PA/PE)

- 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UA424PA/PE)

- Installation with minimum configuration, system-based pricing (U4829A/E)

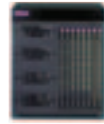- Installation with HP-provided configuration, system-based pricing (U4833A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Routing Switch 9300m Series

## Specifications

| | ProCurve Routing Switch 9304m (J4139A) | ProCurve Routing Switch 9308m (J4138A) | ProCurve Routing Switch 9315m (J4874A) |
|---|---|---|---|
| **Ports** | | | |
| Maximum ports | 4 open module slots<br>Supports a maximum of 6 10GbE, 56 10/100/1000, or 144 10/100 ports | 8 open module slots<br>Supports a maximum of 14 10GbE, 120 10/100/1000, or 336 10/100 ports | 15 open module slots<br>Supports a maximum of 28 10GbE, 232 10/100/1000, or 672 10/100 ports |
| **Physical characteristics** | | | |
| Dimensions | 9 x 17.5 x 15 in.<br>(22.86 x 44.45 x 38.1 cm) (5U height) | 20.75 x 17.5 x 15.25 in.<br>(52.71 x 44.45 x 38.74 cm) (12U height) | 29.75 x 19 x 15.25 in.<br>(75.57 x 48.26 x 38.74 cm) (17U height) |
| Weight (fully loaded) | 60 lb. (27 kg) | 117 lb. (52.65 kg) | 256 lb. (115.2 kg) |
| **Memory and processor** | | | |
| EP management (J4885A) | | | |
| Packet buffer size | 4 MB per module | 4 MB per module | 4 MB per module |
| Processor type and speed | Motorola PowerPC @ 466 MHz | Motorola PowerPC @ 466 MHz | Motorola PowerPC @ 466 MHz |
| RAM/ROM capacity | 512 MB per module | 512 MB per module | 512 MB per module |
| Flash capacity | 16 MB | 16 MB | 16 MB |
| Standard management (J4857A) | | | |
| Packet buffer size | 8 MB per module | 8 MB per module | 8 MB per module |
| Processor type and speed | Motorola PowerPC @ 466 MHz | Motorola PowerPC @ 466 MHz | Motorola PowerPC @ 466 MHz |
| RAM/ROM capacity | 256 MB per module | 256 MB per module | 256 MB per module |
| Flash capacity | 8 MB | 8 MB | 8 MB |
| T-Flow management (J4879A) | | | |
| Packet buffer size | 8 MB per module | 8 MB per module | 8 MB per module |
| Processor type and speed | 4 Motorola PowerPC @ 466 MHz each | 4 Motorola PowerPC @ 466 MHz each | 4 Motorola PowerPC @ 466 MHz each |
| SDRAM capacity | 1.25 GB per module | 1.25 GB per module | 1.25 GB per module |
| Flash capacity | 16 MB | 16 MB | 16 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | | |
| Latency | <7 μs (FIFO) | <7 μs (FIFO) | <7 μs (FIFO) |
| Throughput | 83 million pps (64-byte packets) | 178 million pps (64-byte packets) | 345 million pps (64-byte packets) |
| Routing/Switching capacity | 128 Gbps | 256 Gbps | 480 Gbps |
| Address table size | 64,000 entries | 64,000 entries | 64,000 entries |
| **Environment** | | | |
| Operating temperature | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) |
| Operating relative humidity | 5% to 90% @ 104°F (40°C), non-condensing | 5% to 90% @ 104°F (40°C), non-condensing | 5% to 90% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –13°F to 158°F (–25°C to 70°C) | –13°F to 158°F (–25°C to 70°C) | –13°F to 158°F (–25°C to 70°C) |
| Non-operating/storage relative humidity | 95% @ 149°F (65°C), non-condensing | 90% @ 149°F (65°C), non-condensing | 90% @ 149°F (65°C), non-condensing |
| Shock and vibration | EN 60068 (IEC 68) | EN 60068 (IEC 68) | EN 60068 (IEC 68) |
| **Electrical characteristics** | | | |
| Max BTUs | 1,435 BTU/hr | 2,835 BTU/hr | 5,857 BTU/hr |
| Voltage | 100–120 VAC/200–240 VAC | 100–120 VAC/200–240 VAC | 100–120 VAC/200–240 VAC |
| Current | 8 A /4 A | 8 A /4 A | 17 A /8.5 A |
| Power | 420 W | 830 W | 1,715 W |
| Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| **Safety** | CSA 950; EN 60950/IEC 60950; UL 1950 | CSA 950; EN 60950/IEC 60950; UL 1950 | CSA 950; EN 60950/IEC 60950; UL 1950 |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | | |
| ESD | IEC 61000-4-2; 4 kV CD, 8 kV AD | IEC 61000-4-2; 4 kV CD, 8 kV AD | IEC 61000-4-2; 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3; 3V/m | IEC 61000-4-3; 3V/m | IEC 61000-4-3; 3V/m |
| EFT/Burst | IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) |
| Conducted | EC 61000-4-6; 3V | IEC 61000-4-6; 3V | IEC 61000-4-6; 3V |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB | ProCurve Manager (included); ProCurve Manager Plus; 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB | ProCurve Manager (included); ProCurve Manager Plus; 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB |
| **Standards and protocols** | IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; RFC 1583 OSPFv2; IEEE 802.1D Spanning Tree; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1p Priority; SNMPv1/v2c/v3; RFC 1493 Bridge MIB; RFC 1075 DVMRP; PIM-dense, PIM-sparse, and PIM snooping mode; RFC 2338 VRRP; RFC 1058 RIP; RFC 1723 RIPv2; RFC 2819 Four groups of RMON: 1 (statistics),2 (history), 3 (alarm), and 9 (events) | IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; RFC 1583 OSPFv2; IEEE 802.1D Spanning Tree; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1p Priority; SNMPv1/v2c/v3; RFC 1493 Bridge MIB; RFC 1075 DVMRP; PIM-dense, PIM-sparse, and PIM snooping mode; RFC 2338 VRRP; RFC 1058 RIP; RFC 1723 RIPv2; RFC 2819 Four groups of RMON: 1 (statistics),2 (history), 3 (alarm), and 9 (events) | IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; RFC 1583 OSPFv2; IEEE 802.1D Spanning Tree; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1p Priority; SNMPv1/v2c/v3; RFC 1493 Bridge MIB; RFC 1075 DVMRP; PIM-dense, PIM-sparse, and PIM snooping mode; RFC 2338 VRRP; RFC 1058 RIP; RFC 1723 RIPv2; RFC 2819 Four groups of RMON: 1 (statistics),2 (history), 3 (alarm), and 9 (events) |

¹ This product requires a management module (ordered separately). Shown with optional modules installed.

# ProCurve Routing Switch 9300m Series Modules and RPS

## ProCurve 9300 EP 8-Port Mini-GBIC Redundant Management Module (J4885A)

**Ports**
8 open mini-GBIC slots
1 RS-232C DB-9 console port
Duplex: full

**Physical characteristics**
Dimensions: 16.0 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 4.35 lb. (1.96 kg)

**Mini-GBICs supported (ordered separately)**
- J4858A ProCurve Gigabit-SX-LC Mini-GBIC
- J4859A ProCurve Gigabit-LX-LC Mini-GBIC
- J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**Notes**
This module cannot be installed in the same chassis with non-EP modules.
Two modules are required for redundant configuration.
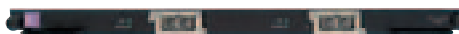
## ProCurve 9300 2-Port 10GbE Module (J8174A)

**Ports**
2 open 10GbE XENPAK transceiver slots
Duplex: full

**Physical characteristics**
Dimensions: 16.0 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 5.2 lb. (2.34 kg)

**XENPAK Transceivers supported (ordered separately)**
- J8173A ProCurve 9300 10GbE LR optic
- J8175A ProCurve 9300 10GbE SR optic
- J8176A ProCurve 9300 10GbE ER optic

**Notes**
This module can be installed in the same chassis with either EP or non-EP modules.
This module requires software version 7.6.04 or greater.

## ProCurve 9300 EP 16-Port Mini-GBIC Module (J4894A)

**Ports**
16 open mini-GBIC slots
Duplex: full

**Physical characteristics**
Dimensions: 16 x 12.54 x 1.0 in. (40.64 x 31.85 x 2.54 cm)
Weight: 4.31 lb. (1.94 kg)

**Mini-GBICs supported (ordered separately)**
- J4858A ProCurve Gigabit-SX-LC Mini-GBIC
- J4859A ProCurve Gigabit-LX-LC Mini-GBIC
- J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**Notes**
This module cannot be installed in the same chassis with non-EP modules.

## ProCurve 9300 EP 16-Port 100/1000-T Module (J4895A)

**Ports**
16 auto-sensing 10/1000 ports (IEEE 802.3u Type 100Base-TX; IEEE 802.3ab Type 1000Base-T
Connector: RJ-45
Duplex: full

**Physical characteristics**
Dimensions: 16.0 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 4.31 lb. (1.94 kg)

**Cabling**
Type:
- 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
- 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T

**Notes**
This module cannot be installed in the same chassis with non-EP modules.

Services for accessories are covered under the product in which they are installed.

# ProCurve Routing Switch 9300m Series Modules and RPS

## ProCurve 9300 EP 48-Port 10/100-TX RJ-45 Module (J4881B)

**Ports**
48 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX)
HP Auto-MDIX: none
Connector: RJ-45
Duplex: full

**Physical characteristics**
Dimensions: 16 x 12.5 x 2 in. (40.64 x 31.75 x 5.08 cm)
Weight: 5.2 lb. (2.34 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX

**Notes**
This module cannot be installed in the same chassis with non-EP modules. Requires software version 7.8 or greater.

## ProCurve 9300 EP 48-Port 10/100-TX Telco (RJ-21) Module (J4889B)

**Ports**
48 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX)
Connector: RJ-21
Duplex: full

**Physical characteristics**
Dimensions: 16 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 4.64 lb. (2.09 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX

**Notes**
This module cannot be installed in the same chassis with non-EP modules. Requires software version 7.8 or greater.

## ProCurve 9300 EP 24-Port 100Base-FX Module (J8178A)

**Ports**
24 100Base-FX ports (IEEE 802.3u Type 100Base-FX)
Duplex: full

**Physical characteristics**
Dimensions: 16.0 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 3.0 lb. (1.35 kg)

**Cabling**
Type:
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 2 km

**Notes**
This module can not be installed in the same chassis with non-EP modules.

## ProCurve 9300 T-Flow Redundant Management Module (J4879A)

**Ports**
Portless management module
1 RS-232C DB-9 console port

**Physical characteristics**
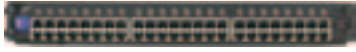Dimensions: 16 x 12.5 x 1.0 in. (40.64 x 31.75 x 2.54 cm)
Weight: 4.96 lb. (2.23 kg)

**Notes**
This module cannot be installed in the same chassis with EP modules.
Redundancy requires software version 7.06.01 or greater.
Two modules are required for redundant configuration.

Services for accessories are covered under the product in which they are installed.

# ProCurve Routing Switch 9300m Series Modules and RPS

## ProCurve 9304m/9308m Redundant Power Supply (J4147A), not pictured

**Physical characteristics**
Dimensions: 13.6 x 7.3 x 3.15 in. (34.54 x 18.54 x 8 cm)
Weight: 8.15 lb. (3.67 kg)

**Electrical characteristics**
Voltage: 100–120 VAC/200–240 VAC
Current: 8.0 A/4.0 A
Frequency: 50/60 Hz

**Notes**
For additional RPS specification information, see the data sheet for the product in which the RPS is being installed. This RPS is supported only in the following chassis:
• J4138A ProCurve Routing Switch 9308m
• J4139A ProCurve Routing Switch 9304m
• Switch 9304m—includes one power supply; supports max of 2
• Switch 9308m—includes two power supplies; supports max of 4
Adding one additional power supply (for total of 3) provides N+1 redundancy.
Adding two additional power supplies (for total of 4) allows use of 2 separate power grids.

## ProCurve 9315m Redundant Power Supply (J4875A), not pictured

**Physical characteristics**
Dimensions: 15.5 x 7.75 x 4.4 in. (39.37 x 19.68 x 11.18 cm)
Weight: 14.5 lb. (6.53 kg)

**Electrical characteristics**
Voltage: 100–120 VAC/200–240 VAC
Current: 16 A
Frequency: 47/63 Hz

**Notes**
For additional RPS specification information, see the data sheet for the product in which the RPS is being installed. This RPS is supported only in the J4874A ProCurve Routing Switch 9315m.
Switch 9315m—includes 2 power supplies; supports max of 4
Adding one additional power supply (for total of 3) provides N+1 redundancy.
Adding two additional power supplies (for total of 4) allows use of 2 separate power grids.

Services for accessories are covered under the product in which they are installed.

# ProCurve Routing Switch 9300m Series Modules and RPS



## ProCurve 9300 10GbE LR Optic (J8173A)

XENPAK-based hot-pluggable optic for use with 9300 2-port 10GbE module. LR or 10 km distance.

**Ports**
1 10 Gigabit Ethernet port (IEEE 802.3ae Type 10Gbase-LR 1310 nm serial optics)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 4.76 x 1.42 x 0.69 in. (12.1 x 3.6 x 1.74 cm)
Weight: .30 lb. (0.14 kg)

**Cabling**
Type: 8/125 μm (core/cladding) diameter, single-mode fiber-optic, complying with ITU-T G.652
Maximum distance: 10 km

**Notes**
For use with ProCurve 9300 2-Port 10GbE Module (J8174A) only.
Optic only—module sold separately.



## ProCurve 9300 10GbE ER Optic (J8176A)

XENPAK-based hot-pluggable optic for use with 9300 2-port 10GbE module. ER or 40 km distance.

**Ports**
1 10 Gigabit Ethernet port (IEEE 802.3ae Type 10Gbase-ER 1550 nm serial optics)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 4.76 x 1.42 x 0.69 in. (12.09 x 3.61 x 1.75 cm)
Weight: 0.30 lb. (0.14 kg)

**Cabling**
Type: 8/125 μm (core/cladding) diameter, single-mode fiber-optic, complying with ITU-T G.652. Requires a minimum of 5 dB attenuation or a cable length of 10 km
Maximum distance: 40 km

**Notes**
For use with ProCurve 9300 2-Port 10GbE Module (J8174A) only.
Optic only—module sold separately.



## ProCurve 9300 10GbE SR Optic (J8175A)

XENPAK-based hot-pluggable optic for use with 9300 2-port 10GbE module. SR or 300 m distance.

**Ports**
1 10 Gigabit Ethernet port (IEEE 802.3ae Type 10Gbase-SR 850 nm serial optics)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 4.76 x 1.42 x 0.69 in. (12.09 x 3.61 x 1.75 cm)
Weight: 0.30 lb. (0.14 kg)

**Cabling**
Type:
- 50/125 μm (core/cladding) diameter, multimode fiber-optic, with effective modal bandwidth of 2000 MHz/km as detailed in TIA-492AAAC for distances of up to 300 m
- 62.5/125 μm (core/cladding) diameter, multimode fiber-optic, with effective modal bandwidth of 400 MHz/km as detailed in TIA-492AAAC for distances of up to 66 m
- 62.5/125 μm (core/cladding) diameter, multimode fiber-optic, with effective modal bandwidth of 200 MHz/km as detailed in TIA-492AAAC for distances of up to 33 m
Maximum distance: 300 m

**Notes**
For use with ProCurve 9300 2-Port 10GbE Module (J8174A) only.
Optic only—module sold separately.

## Additional Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch 5300xl Series

Designed to accommodate the most demanding network needs, the ProCurve Switch 5300xl series offers scalable Layer 2, 3, and 4 switching in compact 4- or 8-slot modular form factors. These secure, convergence-ready switches provide flexibility, high port density, free software updates, and a lifetime warranty. The easy-to-use ProCurve 5300xl series provides the latest in technology with unparalleled investment protection and superior return on IT.
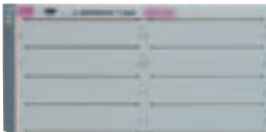
ProCurve Switch 5304xl
(J4850A)

ProCurve Switch 5304xl-32G
(J8166A)

ProCurve Switch 5348xl
(J4849A)

ProCurve Switch 5308xl
(J4819A)

ProCurve Switch 5308xl-48G
(J8167A)

ProCurve Switch 5372xl
(J4848A)

# ProCurve Switch 5300xl Series

## Features and benefits

- **Non-blocking architecture:** up to 76.8 Gbps non-blocking crossbar switching fabric provides wire-speed intra- and inter-module switching with up to 48 million pps throughput built on HP custom-designed ASIC technology

- **Layer 3 IP routing:** provides routing of IP at media speed; supports static routes, RIP, RIPv2, and OSPF

- **Router redundancy (XRRP):** allows groups of 2 routers to dynamically back each other up to create highly available routed environments

- **IP multicast routing (PIM Dense):** routes IP multicast using the PIM Dense routing protocol

- **IP multicast (data-driven IGMPv3):** automatically prevents flooding of IP multicast traffic

- **Virus throttling*:** Detects some forms of network virus activity and either throttles or entirely prevents the ability for the virus to spread across the routed VLANs of the ProCurve 5300xl series

- **802.1s Multi-Instance Spanning Tree:** high link availability in multiple VLAN environments by allowing multiple spanning trees

- **HP switch meshing:** dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support up to 36 trunks, and up to 8 links (ports) per trunk; trunking across modules is supported

- **Cisco Fast EtherChannel° (FEC):** supports Cisco's proprietary FEC trunking protocol

- **Multiple user authentication methods:**

  - **IEEE 802.1X:** industry-standard way of user authentication using the 802.1X supplicant on the client in conjunction with a RADIUS server

  - **Web-based authentication:** similar to 802.1X, provides browser-based environment to authenticate clients that do not support the 802.1X supplicant

  - **MAC-based authentication:** client is authenticated with the RADIUS server based on the MAC address of the client—useful for clients that have minimal or no user interface

- **Authentication flexibility:**

  - **Multiple 802.1X users per port:** authentication of multiple 802.1X users per port. Prevents user "piggybacking" on another user's 802.1X authentication

  - **Concurrent 802.1X, Web, and MAC authentication schemes per port*:** switch port will accept any of 802.1X, Web, or MAC authentication for a user

- **User-driven port configuration support:** switch port configuration responds to RADIUS stored user attributes for QoS and Rate Limiting when that user authenticates—these attributes can be determined by the user, not the switch port

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number

- **VLAN support and tagging:** support complete 802.1Q (4,096 VLAN IDs) and 256 VLANs simultaneously

*Check Web site for availability

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# ProCurve Switch 5300xl Series

## Features and benefits (continued)

- **802.1v Protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **Port security:** prevents unauthorized access using MAC address lockdown

- **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network

- **Source port filtering:** allows only specified ports to communicate with each other

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure CLI remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Secure FTP:** allows secure file transfer to/from the switch—protects against unwanted file downloads or unauthorized copying of switch configuration file

- **Secure access to manage the ProCurve 5300xl series:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for switch CLI logon

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP ports

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **Bandwidth shaping:**

  – **Rate limiting:** per port ingress-based enforced bandwidth maximums; trunking across modules is supported

  – **Guaranteed minimums:** per port, per queue egress-based guaranteed bandwidth minimums

- **Class of Service (CoS):** sets 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

- **RMON, XRMON, sFlow, and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **UDP helper function*:** directed UDP broadcasts across router interfaces can be converted to specific IP addresses to decrease the amount of broadcast traffic and prevent server spoofing for UDP services such as DHCP

- **Link Layer Discovery Protocol (LLDP)*/Cisco Discovery Protocol (CDPv1):** enables real-time mapping of nodes to switch ports: LLDP—IEEE 802.1AB industry-standard discovery protocol automatically populates both the LLDP and CDPv1 MIBs for net management systems dependent on these MIBs; CDP populates the CDPv1 MIB

- **Friendly port names:** allows assignment of descriptive names to ports

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

*Check Web site for availability

# ProCurve Switch 5300xl Series

- **Hot-swappable modules:** permit modules, mini-GBICs, and one of the power supplies in a redundant power supply configuration to be added or swapped without interrupting the network

- **Dual flash images:** provide independent primary and secondary OS and configuration files for backup while upgrading or fine-tuning the switch configuration

- **Optional redundant power supply:** provides uninterrupted power and allows hot swapping one of the two supplies when installed

- **Troubleshooting:** ingress/egress port monitoring enables network problem-solving

- **iSCSI support:** enables the deployment of Ethernet storage area network solutions using the iSCSI standard

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H4496A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319A/E)

- Installation with minimum configuration, system-based pricing (U4828A/E)

- Installation with HP-provided configuration, system-based pricing (U4832A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# HP ProCurve Switch 5300xl Series

## Specifications

| | ProCurve Switch 5304xl (J4850A) | ProCurve Switch 5304xl-32G (J8166A) | HP ProCurve Switch 5348xl (J4849A) |
|---|---|---|---|
| **Ports** | 4 open module slots | 32 10/100/1000 ports and 4 mini-GBIC slots (2 x J4907A) 2 open module slots | 48 RJ-45 10/100 ports (2 x J4820A) 2 open module slots |
| Maximum ports | Supports a maximum of 64 10/100/1000 ports and 96 10/100 ports | Supports a maximum of 64 10/100/1000 ports and 96 10/100 ports | Supports a maximum of 64 10/100/1000 ports and 96 10/100 ports |
| **Physical characteristics** | | | |
| Dimensions | 17.4 x 15.3 x 5.25 in. (44.2 x 38.86 x 13.34 cm) (3U height) | 17.4 x 15.3 x 5.25 in. (44.2 x 38.86 x 13.34 cm) (3U height) | 17.4 x 15.3 x 5.25 in. (44.2 x 38.86 x 13.34 cm) (3U height) |
| Weight (fully loaded) | 21.70 lb. (9.84 kg) | 24.25 lb. (11 kg) | 24.65 lb. (11.18 kg) |
| **Memory and processor** | | | |
| Fabric processor type and speed | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM |
| Module processor type and speed | N/A | ARM9 @ 66 MHz | ARM7 @ 66 MHz |
| Flash | N/A | 128 KB | 128 KB |
| SRAM | N/A | 128 KB | 128 KB |
| RDRAM | N/A | 18 MB | 18 MB |
| Packet buffer size | 36 MB | 36 MB | 36 MB |
| Flash capacity | Dual flash | Dual flash | Dual flash |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | | |
| Latency | <6 µs (FIFO) | <6 µs (FIFO) | <6 µs (FIFO) |
| Throughput | Up to 24 million pps | Up to 24 million pps | Up to 24 million pps |
| Switch fabric speed | 38.4 Gbps | 38.4 Gbps | 38.4 Gbps |
| Address table size | 10,000 entries | 10,000 entries | 10,000 entries |
| **Environment** | | | |
| Operating temperature | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | | |
| Maximum BTUs | 2,152 BTU/hr | 2,152 BTU/hr | 2,152 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 8.2 A /3.8 A | 8.2 A /3.8 A | 8.2 A /3.8 A |
| Power | 630 W | 630 W | 630 W |
| Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |

| **Standards and protocols** |
|---|
| RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 3376 IGMPv1/v2/v3; RFC 2453 RIPv2; RFC 2328 OSPFv2 (includes route authentication); IGMPv3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.1s Multiple Spanning Trees; IEEE 802.3ad Link Aggregation Control Protocol; IEEE 802.1AB Link Layer Discovery Protocol; Cisco Fast EtherChannel® (FEC); RFC 2474 DiffServ Precedence; RFC 2597 DiffServ Expedited Forwarding (EF); RFC 2598 DiffServ Assured Forwarding (AF); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q VLAN tagging; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; PIM Dense; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 1058 RIP; RFC 1724 RIPv2 MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); XRMON; sFlow; RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 1850 OSPF MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB |

# ProCurve Switch 5300xl Series

## Specifications

| | ProCurve Switch 5308xl (J4819A) | ProCurve Switch 5308xl-48G (J8167A) | ProCurve Switch 5372xl (J4848A) |
|---|---|---|---|
| **Ports** | 8 open module slots | 48 RJ-45 10/100/1000 ports and 6 mini-GBIC slots (3 x J4907A) 5 open module slots | 72 RJ-45 10/100 ports (3 x J4820A) 5 open module slots |
| Maximum ports | Supports a maximum of 128 10/100/1000 ports and 192 10/100 ports | Supports a maximum of 128 10/100/1000 ports and 192 10/100 ports | Supports a maximum of 128 10/100/1000 ports and 192 10/100 ports |
| **Physical characteristics** | | | |
| Dimensions | 17.4 x 15.3 x 8.75 in. (44.2 x 38.86 x 22.23 cm) (5U height) | 17.4 x 15.3 x 8.75 in. (44.2 x 38.86 x 22.23 cm) (5U height) | 17.4 x 15.3 x 8.75 in. (44.2 x 38.86 x 22.23 cm) (5U height) |
| Weight (fully loaded) | 26.65 lb. (12.09 kg) | 30.55 lb. (13.86 kg) | 31.05 lb. (14.08 kg) |
| **Memory and processor** | | | |
| Fabric processor type and speed | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz, 12 MB flash, 32 MB SDRAM |
| Module processor type and speed | N/A | ARM9 @ 66 MHz | ARM7 @ 66 MHz |
| Flash | N/A | 128 KB | 128 KB |
| SRAM | N/A | 128 KB | 128 KB |
| RDRAM | N/A | 18 MB | 18 MB |
| Packet buffer size | 36 MB | 36 MB | 36 MB |
| Flash capacity | Dual flash | Dual flash | Dual flash |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | | |
| Latency | <6 µs (FIFO) | <6 µs (FIFO) | <6 µs (FIFO) |
| Throughput | Up to 48 million pps | Up to 48 million pps | Up to 48 million pps |
| Switch fabric speed | 76.8 Gbps | 76.8 Gbps | 76.8 Gbps |
| Address table size | 10,000 entries | 10,000 entries | 10,000 entries |
| **Environment** | | | |
| Operating temperature | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | | |
| Maximum BTUs | 2,152 BTU/hr | 2,152 BTU/hr | 2,152 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 8.2 A /3.8 A | 8.2 A /3.8 A | 8.2 A /3.8 A |
| Power | 630 W | 630 W | 630 W |
| Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 3376 IGMPv1/v2/v3; RFC 2453 RIPv2; RFC 2328 OSPFv2 (includes route authentication); IGMPv3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.1s Multiple Spanning Trees; IEEE 802.3ad Link Aggregation Control Protocol; IEEE 802.1AB Link Layer Discovery Protocol; Cisco Fast EtherChannel® (FEC); RFC 2474 DiffServ Precedence; RFC 2597 DiffServ Expedited Forwarding (EF); RFC 2598 DiffServ Assured Forwarding (AF); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q VLAN tagging; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; PIM Dense; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 1058 RIP; RFC 1724 RIPv2 MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); XRMON; sFlow; RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 1850 OSPF MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB | | |

## ProCurve Switch xl 24-Port 10/100-TX Module (J4820A)

**Ports**
24 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T;
   802.3u Type 100Base-TX)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.76 lb. (0.79 kg)

**Cabling**
Type:
- 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
- 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
Maximum distance: 100 m



## ProCurve Switch xl 24-Port 10/100-TX PoE Module (J8161A)

**Ports**
24 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T;
   802.3u Type 100Base-TX)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 2.23 lb. (1 kg)

**Notes**
Requires ProCurve 600 EPS/RPS or 610 EPS to supply PoE power



## ProCurve Switch xl 16-Port 10/100/1000 Module (J4907A)

**Ports**
14 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T;
   802.3u Type 100Base-TX; 802.3ab Type 1000Base-T)
2 dual-personality ports
HP Auto-MDIX: yes
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 8.98 x 7.99 x 1.75 in. (22.8 x 20.3 x 4.45 cm)
Weight: 1.55 lb. (0.70 kg)

**Mini-GBICs supported (ordered separately)**
- J4858A ProCurve Gigabit-SX-LC Mini-GBIC
- J4859A ProCurve Gigabit-LX-LC Mini-GBIC
- J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**Cabling**
Type:
- 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
- 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
- 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m



## ProCurve Switch xl 4-Port 100/1000-T Module (J4821A)

**Ports**
4 auto-sensing 100/1000 ports (IEEE 802.3u Type 100Base-TX;
   802.3ab Type 1000Base-T)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex:
- 100Base-TX: half or full
- 1000Base-T: full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.5 lb. (0.68 kg)

**Cabling**
Type:
- 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
- 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch xl Modules and RPS

**ProCurve Switch xl 12-Port 100-FX MTRJ Module (J4852A)**

**Ports**
12 100Base-FX ports (IEEE 802.3u Type 100Base-FX)
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.8 lb. (0.82 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 2 km (full-duplex) or 412 m (half-duplex)

**ProCurve Switch xl 4-Port Mini-GBIC Module (J4878A)**

**Ports**
4 open mini-GBIC slots

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.44 lb. (0.65 kg)

**Mini-GBICs supported (ordered separately)**
• J4858A ProCurve Gigabit-SX-LC Mini-GBIC
• J4859A ProCurve Gigabit-LX-LC Mini-GBIC
• J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**ProCurve Switch gl/xl Redundant Power Supply (J4839A),** not pictured

**Physical characteristics**
Dimensions: 7.9 x 6.3 x 5 in. (20.07 x 16 x 12.7 cm)
Weight: 5.55 lb. (2.5 kg)

**Electrical characteristics**
Voltage: 100–127 VAC/200–240 VAC
Maximum current: 8.2 A/3.8 A
Frequency: 50/60 Hz

**Notes**
For additional RPS specification information, see the data sheet for the product in which the RPS is being installed.

## Additional Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

**ProCurve 600 Redundant/External Power Supply (J8168A)** See page 74 for details.

**ProCurve 610 External Power Supply (J8169A)**
See page 74 for details.

Services for accessories are covered under the product in which they are installed.

# NEW ProCurve Switch 3400cl Series

The ProCurve Switch 3400cl series consists of exceptionally affordable 24- and 48-port 10/100/1000 intelligent EDGE stackables with optional 10 Gigabit uplinks and stacking capability. Created in response to the growing need for network capacity in a world where high-demand applications are becoming common, these standards-based Layer 3 switches provide outstanding performance, traffic management, and access control capabilities. The result is an efficient, secure, high-throughput, multi-service network that is able to handle the demands of today's applications as well as those that will emerge in the future.

NEW ProCurve Switch 3400cl-24G (J4905A)

NEW ProCurve Switch 3400cl-48G (J4906A)

# ProCurve Switch 3400cl Series

## Features and benefits

- **88 Gbps backplane with 64 million pps (ProCurve 3400cl-24G) and 136 Gbps backplane with 99.5 million pps (ProCurve 3400cl-48G):** up to ten times the bandwidth for low-latency throughput

- **Dual-personality functionality:** four 10/100/1000 ports or mini-GBIC slots for optional fiber connectivity such as Gigabit-SX, -LX, or -LH

- **Router redundancy (XRRP):** allows groups of 2 routers to dynamically back each other up to create highly available routed environments

- **VLAN support and tagging:** support complete 802.1Q (4,096 VLAN IDs) and 256 VLANs simultaneously

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number

- **Port security:** prevents unauthorized access using MAC address lockdown

- **Source port filtering:** allows only specified ports to communicate with each other

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure CLI remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP ports

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **Class of Service (CoS):** sets 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

- **RMON, XRMON, and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **Friendly port names:** allows assignment of descriptive names to ports

- **Find-Fix-and-Inform:** finds and fixes common network problems automatically, then informs administrator

- **iSCSI support:** enables the deployment of Ethernet storage area network solutions using the iSCSI standard

- **802.1X and RADIUS network login:** control port-based access for authentication and accountability

- **802.1v Protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

- **MAC address lockout:** prevent configured particular MAC addresses from connecting to the network

- **Web-based authentication:** similar to 802.1X, provides a brower-based environment to authenticate clients that do not support the 802.1X supplicant

- **Secure FTP:** allows secure file transfer to/from the switch—protects against unwanted file downloads or unauthorized copying of switch configuration file

- **Rate Limiting:** per port ingress enforced maximums and per port, per queue guaranteed minimums

# ProCurve Switch 3400cl Series

## Features and benefits (continued)

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **Dual flash images:** provide independent primary and secondary OS files for backup while upgrading

- **Guaranteed minimum bandwidth:** per port, per queue guaranteed minimums. Strict queuing of port queues can be specified through this feature

- **Secure management access:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.1s Multi-Instance Spanning Tree:** high link availability in multiple VLAN environments by allowing multiple spanning trees

- **sFlow (RFC 3176):** wire-speed traffic accounting and monitoring

- **Jumbo frames:** on Gigabit and 10 Gigabit ports allow high-performance remote backup and disaster recovery services

- **Optional redundant power supply:** provides uninterrupted power

- **HP switch meshing:** dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth

- **Layer 3 IP routing:** provides routing of IP at media speed; supports static routes, RIP, RIPv2, and OSPF

- **IP multicast (data-driven IGMPv3):** automatically prevents flooding of IP multicast traffic

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support up to 25 trunks, each with up to 8 links (ports) per trunk

- **Link Layer Discovery Protocol:** Automated device discovery protocol for easy mapping by network management applications

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

**ProCurve Switch 3400cl-24G**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U2855A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

**ProCurve Switch 3400cl-48G**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H4496A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 3400cl Series

## Specifications

| | ProCurve Switch 3400cl-24G (J4905A) | ProCurve Switch 3400cl-48G (J4906A) |
|---|---|---|
| **Ports** | 20 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet) | 44 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet) |
| | 4 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) | 4 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) |
| | 1 open module slot | 1 open module slot |
| | 1 RS-232C DB-9 console port | 1 RS-232C DB-9 console port |
| Maximum ports | Supports a maximum of 2 10GbE and 24 10/100/1000 ports | Supports a maximum of 2 10GbE and 48 10/100/1000 ports |
| **Physical characteristics** | | |
| Dimensions | 14.45 x 17.32 x 1.73 in. (36.7 x 44 x 4.4 cm) (1U height) | 16.93 x 17.32 x 1.73 in. (43 x 44 x 4.4 cm) (1U height) |
| Weight | 10.27 lb. (4.62 kg) | 10.84 lb. (4.88 kg) |
| **Memory and processor** | | |
| Processor type and speed | Motorola PowerPC MPC8245 @ 266 MHz | Motorola PowerPC MPC8245 @ 266 MHz |
| Packet buffer size | 2 MB (1 MB per 12 ports) | 4 MB (1 MB per 12 ports) |
| Flash capacity | 16 MB, Dual flash | 16 MB, Dual flash |
| SDRAM | 128 MB | 128 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | |
| 1000 MB | <6 μs | <6 μs |
| 10 Gbps | <10 μs | <10 μs |
| Throughput | Up to 64 million pps | Up to 99.5 million pps |
| Routing/Switching capacity | 88 Gbps | 136 Gbps |
| Address table size | 64,000 entries | 64,000 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| Acoustic | DIN 45635T.19 per ISO 7779 <53dB @ <80°F (25°C) | DIN 45635T.19 per ISO 7779 <53dB @ <80°F (25°C) |
| **Electrical characteristics** | | |
| Description | The switch automatically adjusts to any voltage between 100–127 and 200–240 V and either 50 or 60 Hz | The switch automatically adjusts to any voltage between 100–127 and 200–240 V and either 50 or 60 Hz |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 2.0 A/1.0 A | 0.6 A/0.3 A |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | CSA 22.2 No. 60950; UL 60950; EN 60950/IEC 60950 | CSA 22.2 No. 60950; UL 60950; EN 60950/IEC 60950 |
| **Emissions** | FCC Class A; VCCI Class A; EN 55022:1998/CISPR-22:1997 Class A | FCC Class A; VCCI Class A; EN 55022:1998/CISPR-22:1997 Class A |
| **Immunity** | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 3376 IGMPv1/v2/v3; RFC 2453 RI Pv2; RFC 2328 OSFPv2 (includes route authentication); IGMPv3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.1s Multiple Spanning Trees; IEEE 802.3ad Link Aggregation Control Protocol; IEEE 802.1AB Link Layer Discovery Protocol; RFC 2474 DiffServ Precedence; RFC 2597 DiffServ Expedited Forwarding (EF); RFC 2598 DiffServ Assured Forwarding (AF); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1v VLAN Classification by Protocol and Port; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; HTML and telnet management; RFC 1493 Bridge MIB; PIM Dense; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 1058 RIP; RFC 1724 RIPv2 MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 3164 Syslog; XRMON; sFlow; RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 1850 OSPF MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB | |

# ProCurve Switch 3400cl Series



**NEW** **ProCurve Switch cl 10GbE Media Flex Module (J8435A)**

10 Gigabit module with 2 transceiver slots

**Ports**
2 open transceiver slots
Duplex: full

**Physical characteristics**
Dimensions: 4.5 x 6.81 x 1.5 in. (11.43 x 17.3 x 3.81 cm)
Weight: 0.64 lb. (0.29 kg)

**Transceivers supported (ordered separately)**
• J8437A ProCurve 10GbE X2-SC LR Optic
• J8440A ProCurve 10GbE X2-CX4 Transceiver

**Cabling**
Type: 10Gbase-LR serial 1310 nm long haul (up to 10 km on single-mode fiber (SMF)
Maximum distance: 10 km

**Notes**
10GbE CX4 transceiver supports up to 15 m distance using 4X CX4 cable



**NEW** **ProCurve Switch cl 10GbE CX4 Copper Module (J8434A)**

2-port 10 Gigabit module with fixed CX4 connectors and 0.5 m cable

**Ports**
2 10 Gigabit Ethernet ports (IEEE 802.3ak Type 10Gbase-CX4 transceiver)
Duplex: full

**Physical characteristics**
Dimensions: 6.8 x 4.5 x 1.5 in. (17.3 x 11.43 x 3.81 cm)
Weight: 0.67 lb. (0.3 kg)

**Notes**
2-ports 10GbE IEEE 802.1ak Type 10Gbase-CX4 Copper standard



**NEW** **ProCurve Switch cl 10GbE X2-CX4 Transceiver (J8440A)**

10 Gigabit X2 transceiver that supports a CX4 connector with distance of 15 m

**Ports**
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.54 x 1.42 x .53 in. (8.99 x 3.61 x 1.35 cm)
Weight: 0.18 lb. (0.08 kg)

**Environment**
Operating temperature: 32°F to 131°F (0°C to 55°C)

**Notes**
Uses 4X CX4 cable



**NEW** **ProCurve Switch cl 10GbE X2-SC LR Optic (J8437A)**

10 Gigabit X2 transceiver that supports LR distance of 10 km with SC connector

**Ports**
1 10 Gigabit Ethernet port (IEEE 802.3ae Type 10Gbase-LR 1310 nm serial optics)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.48 x 1.42 x .43 in. (8.84 x 3.61 x 1.09 cm)
Weight: 0.16 lb. (0.07 kg)

**Environment**
Operating temperature: 32°F to 122°F (0°C to 50°C)

**Cabling**
Type: 8/125 μm (core/cladding) diameter, single-mode fiber-optic, complying with ITU-T G.652
Maximum distance: 10 km

## Additional Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

**ProCurve 600 Redundant/External Power Supply (J8168A)** See page 74 for details.

# ProCurve Switch 4100gl Series

The ProCurve Switch 4100gl series is convergence-ready and easy to use in compact 8-slot and 4-slot modular form factors. Based on HP Fast Path Technology, these switches provide reliable, high-performance, high-density 10 Mbit, 100 Mbit, or Gigabit connectivity for a growing network. The ProCurve 4100gl series is the low-cost, modular alternative to stackable switches and includes a lifetime warranty.
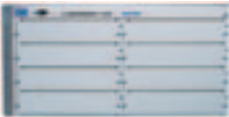
ProCurve Switch 4104gl
(J4887A)

ProCurve Switch 4140gl
(J8151A)

ProCurve Switch 4148gl
(J4888A)

ProCurve Switch 4108gl
(J4865A)

ProCurve Switch 4160gl
(J8152A)

ProCurve Switch 4108gl Bundle
(J4861A)

# ProCurve Switch 4100gl Series

## Features and benefits

- **Basic IP routing:** enables automatic routing with up to 16 external routes—including one default route—in IP networks

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **Fast Path Technology:** wire-speed switching of intra-module traffic for up to 71.4 million pps throughput

- **Fast switch fabric:** high-performance switch fabric (up to 36.6 Gbps)

- **Dual flash images:** provide independent primary and secondary OS files for backup while upgrading

- **VLAN support and tagging:** support complete 802.1Q (4,096 VLAN IDs) and 30 VLANs simultaneously

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support up to 6 trunks, each with up to 4 links (ports) per trunk; trunking across modules is supported

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **Port security:** prevents unauthorized access using MAC address lockdown

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure CLI remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Secure access to manage the ProCurve 4100gl series:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

- **Optional redundant power supply:** provides uninterrupted power and allows hot swapping one of the two supplies when installed

- **Hot-swappable modules:** permit modules, mini-GBICs, and one of the power supplies in a redundant power supply configuration to be added or swapped without interrupting the network

- **Friendly port names:** allows assignment of descriptive names to ports

- **RMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

# ProCurve Switch 4100gl Series

## Services

**ProCurve Switch 4104gl,
ProCurve Switch 4140gl, and
ProCurve Switch 4148gl**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U2855A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304A/E)

- Installation with minimum configuration, system-based pricing (U4827A/E)

- Installation with HP-provided configuration, system-based pricing (U4831A/E)

**ProCurve Switch 4108gl,
ProCurve Switch 4108gl Bundle, and
ProCurve Switch 4160gl**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H7675A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H7676A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6320A/E)

- Installation with minimum configuration, system-based pricing (U4827A/E)

- Installation with HP-provided configuration, system-based pricing (U4831A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 4100gl Series

## Specifications

| | ProCurve Switch 4104gl (J4887A) | ProCurve Switch 4140gl (J8151A) | ProCurve Switch 4148gl (J4888A) |
|---|---|---|---|
| **Ports** | 4 open module slots<br>1 RS-232C DB-9 console port | 40 RJ-45 10/100/1000 ports and<br>  4 mini-GBIC slots (2 x J4908A)<br>2 open module slots<br>1 RS-232C DB-9 console port | 48 10/100 ports (2 x J4862B)<br>2 open module slots<br>1 RS-232C DB-9 console port |
| Maximum ports | Supports a maximum of 96 10/100 ports<br>  or 80 Gigabit ports and 8 mini-GBICs | Supports a maximum of 96 10/100 ports<br>  or 80 Gigabit ports and 8 mini-GBICs | Supports a maximum of 96 10/100 ports<br>  or 80 Gigabit ports and 8 mini-GBICs |
| **Physical characteristics** | | | |
| Dimensions | 17.4 x 15.3 x 5.25 in.<br>  (44.2 x 38.86 x 13.34 cm) (3U height) | 17.4 x 15.3 x 5.25 in.<br>  (44.2 x 38.86 x 13.34 cm) (3U height) | 117.4 x 15.3 x 5.25 in.<br>  (44.2 x 38.86 x 13.34 cm) (3U height) |
| Weight (fully loaded) | 14.75 lb. (6.64 kg) | 22.9 lb. (10.31 kg) | 15.84 lb. (7.13 kg) |
| **Memory and processor** | | | |
| Fabric processor type and speed | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM |
| Module processor type and speed | IDT MIPS32 @ 125 MHz | IDT MIPS32 @ 125 MHz | IDT MIPS32 @ 125 MHz |
| Flash | 512 KB | 512 KB | 512 KB |
| SRAM | N/A | N/A | N/A |
| Packet buffer size | 512 KB | 512 KB | 512 MB |
| SDRAM | 8 MB | 8 MB | 8 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack<br>or equipment cabinet (hardware included);<br>horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack<br>or equipment cabinet (hardware included);<br>horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack<br>or equipment cabinet (hardware included);<br>horizontal surface mounting only |
| **Performance** | | | |
| Latency | <10.2 µs (FIFO 64-byte packets) | <10.2 µs (FIFO 64-byte packets) | <10.2 µs (FIFO 64-byte packets) |
| Throughput | Up to 35.7 million pps | Up to 35.7 million pps | Up to 35.7 million pps |
| Switch fabric speed | 18.3 Gbps | 18.3 Gbps | 18.3 Gbps |
| Address table size | 8,000 entries | 8,000 entries | 8,000 entries |
| **Environment** | | | |
| Operating temperature | 32°F to 131°F (0°C to 55°C) | 32°F to 131°F (0°C to 55°C) | 32°F to 131°F (0°C to 55°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | | |
| Maximum BTUs | 2,152 BTU/hr | 2,152 BTU/hr | 2,152 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 8.2 A/3.8 A | 8.2 A/3.8 A | 8.2 A/3.8 A |
| Power | 630 W | 630 W | 630 W |
| Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950;<br>NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950;<br>NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950;<br>NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A;<br>VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A;<br>VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A;<br>VCCI Class A |
| **Immunity** | | | |
| EN | 55024/CISPR-24 | 55024/CISPR-24 | 55024/CISPR-24 |
| ESD | IEC 61000-4-2, 4kV CD, 8 kV AD | IEC 61000-4-2, 4kV CD, 8 kV AD | IEC 61000-4-2, 4kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line),<br>  0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line),<br>  0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power<br>  line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period;<br>30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period;<br>  30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period;<br>  30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager<br>Plus; command line interface; Web browser;<br>configuration menu; out-of-band management<br>(serial RS-232C) | ProCurve Manager (included); ProCurve Manager<br>Plus; command line interface; Web browser;<br>configuration menu; out-of-band management<br>(serial RS-232C) | ProCurve Manager (included); ProCurve Manager<br>Plus; command line interface; Web browser;<br>configuration menu; out-of-band management<br>(serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; IEEE 802.1Q VLAN tagging; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB | | |

# ProCurve Switch 4100gl Series

## Specifications

| | ProCurve Switch 4108gl (J4865A) | ProCurve Switch 4160gl (J8152A) | ProCurve Switch 4108gl Bundle (J4861A) |
|---|---|---|---|
| **Ports** | 8 open module slots<br>1 RS-232C DB-9 console port | 60 RJ-45 10/100/1000 ports and 6 mini-GBIC slots (3 x J4908A)<br>5 open module slots<br>1 RS-232C DB-9 console port | 72 10/100 ports (3 x J4862B) and 3 transceiver ports (1 x J4864A)<br>4 open module slots<br>1 RS-232C DB-9 console port |
| Maximum ports | Supports a maximum of 192 10/100 ports or 160 Gigabit ports and 16 mini-GBICs, or a combination | Supports a maximum of 192 10/100 ports or 160 Gigabit ports and 16 mini-GBICs, or a combination | Supports a maximum of 192 10/100 ports or 160 Gigabit ports and 16 mini-GBICs, or a combination |
| **Physical characteristics** | | | |
| Dimensions | 17.4 x 15.3 x 8.75 in.<br>(44.2 x 38.86 x 22.23 cm) (5U height) | 17.4 x 15.3 x 8.75 in.<br>(44.2 x 38.86 x 22.23 cm) (5U height) | 17.4 x 15.3 x 8.75 in.<br>(44.2 x 38.86 x 22.23 cm) (5U height) |
| Weight (fully loaded) | 20.7 lb. (9.32 kg) | 30.6 lb. (13.77 kg) | 22.9 lb. (10.31 kg) |
| **Memory and processor** | | | |
| Fabric processor type and speed | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM | Motorola PowerPC @ 200 MHz,<br>8 MB flash, 32 MB SDRAM |
| Module processor type and speed | IDT MIPS32 @ 125 MHz | IDT MIPS32 @ 125 MHz | IDT MIPS32 @ 125 MHz |
| Flash | 512 KB | 512 KB | 512 KB |
| SRAM | 512 KB | 512 KB | 512 KB |
| Packet buffer size | 1 MB | 1 MB | 1 MB |
| SDRAM | N/A | N/A | N/A |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | | |
| Latency | <10.2 µs (FIFO 64-byte packets) | <10.2 µs (FIFO 64-byte packets) | <10.2 µs (FIFO 64-byte packets) |
| Throughput | Up to 71.4 million pps | Up to 71.4 million pps | Up to 71.4 million pps |
| Switch fabric speed | 36.6 Gbps | 36.6 Gbps | 36.6 Gbps |
| Address table size | 8,000 entries | 8,000 entries | 8,000 entries |
| **Environment** | | | |
| Operating temperature | 32°F to 131°F (0°C to 55°C) | 32°F to 131°F (0°C to 55°C) | 32°F to 131°F (0°C to 55°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | | |
| Maximum BTUs | 2,152 BTU/hr | 2,152 BTU/hr | 2,152 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 8.2 A/3.8 A | 8.2 A/3.8 A | 8.2 A/3.8 A |
| Power | 630 W | 630 W | 630 W |
| Frequency | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | | |
| EN | 55024/CISPR-24 | 55024/CISPR-24 | 55024/CISPR-24 |
| ESD | IEC 61000-4-2, 4kV CD, 8 kV AD | IEC 61000-4-2, 4kV CD, 8 kV AD | IEC 61000-4-2, 4kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |

| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; IEEE 802.1Q VLAN tagging; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB |
|---|---|

# ProCurve Switch gl Modules and RPS

**ProCurve Switch gl 20-Port 10/100/1000 Module (J4908A)**

**Ports**
20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T;
  802.3u Type 100Base-TX; 802.3ab Type 1000Base-T)
2 open mini-GBIC slots
HP Auto-MDIX: yes
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.25 lb. (0.56 kg)

**Mini-GBICs supported (ordered separately)**
• J4858A ProCurve Gigabit-SX-LC Mini-GBIC
• J4859A ProCurve Gigabit-LX-LC Mini-GBIC
• J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**Cabling**
Type:
• 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted
  pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type
  10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded
  twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE
  802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential
  4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP)
  balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

**ProCurve Switch gl 24-Port 10/100-TX Module (J4862B)**

**Ports**
24 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T;
  802.3u Type 100Base-TX)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.24 lb. (0.56 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted
  pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3
  Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded
  twisted pair (UTP) or shielded twisted pair (STP), complying with
  IEEE 802.3u 100Base-TX
Maximum distance: 100 m

**ProCurve Switch gl 6-Port Mini-GBIC Module (J4893A)**

**Ports**
6 open mini-GBIC slots

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 0.96 lb. (0.43 kg)

**Mini-GBICs supported (ordered separately)**
• J4858A ProCurve Gigabit-SX-LC Mini-GBIC
• J4859A ProCurve Gigabit-LX-LC Mini-GBIC
• J4860A ProCurve Gigabit-LH-LC Mini-GBIC

**ProCurve Switch gl 6-Port 100/1000-T Module (J4863A)**

**Ports**
6 auto-sensing 100/1000 ports (802.3u Type 100Base-TX;
  802.3ab Type 1000Base-T)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex:
• 100Base-TX: half or full
• 1000Base-T: full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.0 lb. (0.45 kg)

**Cabling**
Type:
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded
  twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE
  802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential
  4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP)
  balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

Services for accessories are covered under the product in which they are installed.

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# ProCurve Switch gl Modules and RPS

## ProCurve Switch gl Transceiver Module (J4864A)

**Ports**
3 open transceiver slots

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.16 lb. (0.52 kg)

**Transceivers supported (ordered separately)**
• J4116A ProCurve Switch Gigabit Stacking Kit
• J4131B ProCurve Gigabit SX Transceiver
• J4132A ProCurve Gigabit LX Transceiver
• J4834A ProCurve 100/1000-T Transceiver
• J4853A ProCurve 100-FX SC Transceiver



## ProCurve Switch gl 12-Port 100-FX MTRJ Module (J4892A)

**Ports**
12 100Base-FX ports (IEEE 802.3u Type 100Base-FX)
Connector: MTRJ
Duplex: half or full

**Physical characteristics**
Dimensions: 8.97 x 8.0 x 1.75 in. (22.78 x 20.32 x 4.45 cm)
Weight: 1.45 lb. (0.65 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 2 km (full-duplex) or 412 m (half-duplex)

## ProCurve Switch gl/xl Redundant Power Supply (J4839A), not pictured

**Physical characteristics**
Dimensions: 7.9 x 6.3 x 5 in. (20.07 x 16 x 12.7 cm)
Weight: 5.55 lb. (2.5 kg)

**Electrical characteristics**
Voltage: 100–127 VAC/200–240 VAC
Maximum current: 8.2 A/3.8 A
Frequency: 50/60 Hz

**Notes**
For additional RPS specification information, see the data sheet for the product in which the RPS is being installed.

# Additional Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

**ProCurve Switch Gigabit Stacking Kit (J4116A)**
See page 72 for details.

**ProCurve Gigabit SX Transceiver (J4131B)**
See page 72 for details.

**ProCurve Gigabit LX Transceiver (J4132A)**
See page 72 for details.

**ProCurve 100/1000-T Transceiver (J4834A)**
See page 73 for details.

**ProCurve 100-FX SC Transceiver (J4853A)**
See page 73 for details.

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch 6108 (J4902A)

The ProCurve Switch 6108 is a low-cost, stackable, multi-layer managed 8-port switch with 6 auto-sensing 10/100/1000 ports and 2 dual-personality ports for 10/100/1000 or mini-GBIC connectivity. With Layer 3 basic IP routing, industry-leading lifetime warranty, and free end-user telephone and e-mail support, the ProCurve 6108 is ideal for access tier aggregation with 2 optional Gigabit fiber uplinks to connect at distances up to 70 km.

ProCurve Switch 6108 (J4902A)

# ProCurve Switch 6108

## Features and benefits

- **16 Gbps backplane:** non-blocking architecture for wire-speed throughput

- **Dual-personality functionality:** two 10/100/1000 ports or mini-GBIC slots for optional fiber connectivity such as Gigabit-SX, -LX, or -LH

- **Basic IP routing:** enables automatic routing with up to 16 external routes—including one default route—in IP networks

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support up to 6 trunks, each with up to 4 links (ports) per trunk

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **802.1X and RADIUS network login:** control port-based access for authentication and accountability

- **Port security:** prevents unauthorized access using MAC address lockdown

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure command line interface (CLI) remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **VLAN support and tagging:** supports up to 30 port-based VLANs, GVRP, and 802.1Q VLAN tagging

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **RMON and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **Cisco Discovery Protocol (CDP):** enables real-time mapping of nodes to switch ports

- **Friendly port names:** allow assignment of descriptive names to ports

- **Secure access to manage the ProCurve 6108:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

# ProCurve Switch 6108

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5481A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6303A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6302A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

## Specifications

**Ports**
6 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet)
2 dual-personality ports—can be used as either 2 additional RJ-45 10/100/1000 ports, 2 open mini-GBIC slots (for use with mini-GBIC transceivers), or one of each
1 RS-232C DB-9 console port

**Physical characteristics**
Dimensions: 17.42 x 9.3 x 1.73 in. (44.25 x 23.62 x 4.39 cm) (1U height)
Weight: 6.96 lb. (3.13 kg)

**Memory and processor**
Flash capacity: 16 MB
Processor: Motorola PowerPC MPC8245

**Mounting**
Mounts in a standard 19 in. rack (hardware included)

**Performance**
Latency: <12.5 μs (LIFO 64-byte packets)
Throughput: 11.9 million pps (64-byte packets)
Switching capacity: 16 Gbps
Address table size: 8,000 entries

**Environment**
Operating
– Temperature: 32°F to 131°F (0°C to 55°C)
– Relative humidity: 15% to 95% at 104°F (40°C), non-condensing
Non-operating/Storage
– Temperature: –40°F to 158°F (–40°C to 70°C)
– Relative humidity: 90% at 149°F (65°C)
Altitude: up to 15,091 ft (4.6 km)

**Electrical characteristics**
Max BTUs: 341 BTU/hr
Voltage: 100–240 VAC
Current: 1.5 A
Power: 100 W
Frequency: 50/60 Hz

**Safety**
cUL (CSA 950);
EN 60950/IEC 60950;
NOM-019-SCFI-1994;
UL 1950 3rd edition

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

**Immunity**
EN: 55024/CISPR 24
ESD: IEC 61000-4-2, 4 kV CD, 8 kV AD
Radiated: IEC 61000-4-3, 3V/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, 3V
Power frequency magnetic field: IEC61000-4-8, 1A/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**
ProCurve Manager (included); command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)

**Standards and protocols**
RFC 783 TFTP;
RFC 951 BootP;
RFC 1542 BootP;
RFC 854 Telnet;
RFC 768 UDP; RFC 792 ICMP;
RFC 793 TCP; RFC 826 ARP;
RFC 2030 Simple Network Time Protocol;
IEEE 802.3X Flow Control;
RFC 2236 IGMP v1/v2/v3;
IEEE 802.1D Spanning Tree;
IEEE 802.1w Rapid Convergence Spanning Tree;
IEEE 802.3ad Link Aggregation Control Protocol;
Cisco Fast EtherChannel® (FEC);
RFC 1492 TACACS+;
SSHv1/SSHv2 Secure Shell;
Secure Sockets Layer (SSL);
IEEE 802.1X Network Login;
IEEE 802.1Q GVRP;
IEEE 802.1p Priority;
SNMPv1/v2c/v3;
Cisco Discovery Protocol (CDP);
HTML and telnet management;
RFC 1493 Bridge MIB;
RFC 1213 MIB II;
RFC 2096 IP Forwarding Table MIB;
RFC 2737 Entity MIB;
RFC 2863 Evolution of Interface;
RFC 2665 Ethernet MIB;
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events);
RFC 2021 RMON probe configuration (RMON v2);
RFC 2668 802.3 MAU MIB;
RFC 2613 SMON;
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB;
RFC 2618 RADIUS Client MIB;
RFC 2620 RADIUS Accounting MIB

# ProCurve Switch 2800 Series

The ProCurve Switch 2800 series consists of two switches: the 24-port ProCurve Switch 2824 with 20 10/100/1000 ports, and the 48-port ProCurve Switch 2848 with 44 10/100/1000 ports. In addition, each switch has 4 dual-personality ports for 10/100/1000 or mini-GBIC connectivity. Ideal for medium to large networks, the ProCurve 2824 and ProCurve 2848 cost-effectively offer the maximum in bandwidth performance with 10 times the speed of 100 Mbit switches. Migrating to Gigabit switches will allow you to take full advantage of your existing high-performance, Gigabit-enabled PCs, laptops, and servers—and see noticeably improved application response and file transfer times. By implementing the ProCurve 2824 or ProCurve 2848, you will seamlessly protect your existing network investment while preparing for future growth.

ProCurve Switch 2824 (J4903A)

ProCurve Switch 2848 (J4904A)

# ProCurve Switch 2800 Series

## Features and benefits

- **48 Gbps backplane with up to 35.7 million pps (ProCurve 2824) and 96 Gbps backplane with up to 71.4 million pps (ProCurve 2848):** ten times the bandwidth for low-latency throughput

- **Dual-personality functionality:** four 10/100/1000 ports or mini-GBIC slots for optional fiber connectivity such as Gigabit-SX, -LX, or -LH

- **Optional external redundant power supply:** provides uninterrupted power

- **Basic IP routing:** enables automatic routing with up to 16 external routes—including one default route—in IP networks

- **IP multicast (data-driven IGMPv3):** automatically prevents flooding of IP multicast traffic

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

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure CLI remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Secure FTP:** allows secure file transfer to/from the switch (protects against unwanted file downloads or unauthorized copying of switch configuration file)

- **802.1v Protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **Cisco Discovery Protocol (CDP):** enables real-time mapping of nodes to switch ports

- **Per-port broadcast throttling:** selectively configure broadcast control on heavy traffic port uplinks

- **Friendly port names:** allows assignment of descriptive names to ports

- **Dual flash images:** provide independent primary and secondary OS files for backup while upgrading

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- **Source port filters:** allow only specified ports to communicate with each other

- **Port security:** prevents unauthorized access using MAC address lockdown

- **Web-based authentication:** similar to 802.1X, provides a browser-based environment to authenticate clients that do not support the 802.1X supplicant

- **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP ports

- **Class of Service (CoS):** sets 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

# ProCurve Switch 2800 Series

- **VLAN support and tagging:** support complete 802.1Q (4,096 VLAN IDs) and 256 VLANs simultaneously

- **Jumbo frames:** allow high-performance remote backup and disaster recovery services

- **RMON, XRMON, sFlow, and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **iSCSI support:** enables the deployment of Ethernet storage area network solutions using the iSCSI standard

- **Troubleshooting:** ingress/egress port monitoring enables network problem solving

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

**ProCurve Switch 2824**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U2855A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

**ProCurve Switch 2848**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H4496A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

**ProCurve 600 Redundant/External Power Supply (J8168A)** See page 74 for details.

**ProCurve 610 External Power Supply (J8169A)**
See page 74 for details.

# ProCurve Switch 2800 Series

## Specifications

| | ProCurve Switch 2824 (J4903A) | ProCurve Switch 2848 (J4904A) |
|---|---|---|
| **Ports** | 20 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet)<br>1 RS-232C DB-9 console port<br>4 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port or an open mini-GBIC slot (for use with mini-GBIC transceivers) | 44 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet)<br>1 RS-232C DB-9 console port<br>4 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port or an open mini-GBIC slot (for use with mini-GBIC transceivers) |
| **Physical characteristics** | | |
| Dimensions | 17.32 x 14.4 x 1.75 in. (43.99 x 36.58 x 4.45 cm) (1U height) | 17.32 x 16.9 x 1.75 in. (43.99 x 42.93 x 4.45 cm) (1U height) |
| Weight (fully loaded) | 10.2 lb. (4.59 kg) | 10.75 lb. (4.84 kg) |
| **Memory and processor** | | |
| Processor type and speed | Motorola PowerPC MPC8245 @ 266 MHz | Motorola PowerPC MPC8245 @ 266 MHz |
| Flash capacity | 8 MB | 8 MB |
| SDRAM | 64 MB | 64 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | |
| Latency | <5.4 µs (64-byte packets) | <5.4 µs (FIFO 64-byte packets) |
| Throughput | Up to 34.7 million pps (64-byte packets) | Up to 69.8 million pps (64-byte packets) |
| Switching capacity | 48 Gbps | 96 Gbps |
| Address table size | 16,000 entries | 16,000 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| Acoustic | DIN 45635T.19 per ISO 7779 <53dB @ <80°F (25°C) | DIN 45635T.19 per ISO 7779 <53dB @ <80°F (25°C) |
| **Electrical characteristics** | | |
| Maximum BTUs | 341 BTU/hr | 341 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 0.6 A/0.3 A | 0.6 A/0.3 A |
| Power | 100 W | 100 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 3376 IGMPv1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); XRMON; RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; IEEE 802.3X Flow Control; DHCP Relay; RFC 3376 IGMPv1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; RFC 2138 RADIUS; RFC 2866 RADIUS accounting; SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; IEEE 802.1Q VLANs; IEEE 802.1Q VLAN tagging; IEEE 802.1Q; GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); XRMON; RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB; RFC 2620 RADIUS Accounting MIB |

# ProCurve Switch 2600 Series

The ProCurve Switch 2600 series is a collection of low-cost, stackable, multi-layer, managed 50- or 26-port switches with 48 or 24 auto-sensing 10/100 ports and 2 dual-personality ports for 10/100/1000 or mini-GBIC connectivity. The ProCurve Switch 2650-PWR and 2626-PWR are IEEE 802.3af compliant for Power over Ethernet and provide up to 15.4W per port. A Redundant/External power supply is also available as an accessory.

ProCurve Switch 2626 (J4900A)

ProCurve Switch 2626-PWR (J8164A)

ProCurve Switch 2650 (J4899A)

ProCurve Switch 2650-PWR (J8165A)

# ProCurve Switch 2600 Series

## Features and benefits

- **13.6 Gbps (ProCurve 2650 and 2650-PWR)/ 9.6 Gbps (ProCurve 2626 and 2626-PWR) backplane:** wire-speed non-blocking architecture for low latency throughput

- **Dual-personality functionality:** two 10/100/1000 ports or mini-GBIC slots for optional fiber connectivity such as Gigabit-SX, -LX, or -LH

- **Power over Ethernet (IEEE 802.3af) compliant (ProCurve 2650-PWR/ProCurve 2626-PWR):** provides up to 15.4W per port to power IP phones, wireless access points, Web cameras, and more (ProCurve 2650-PWR may require an external power supply to provide full 15.4W for all 48 PoE-ready ports)

- **Optional external redundant power supply (ProCurve 2650-PWR/ProCurve 2626-PWR):** provides uninterrupted power; sold as an accessory

- **Basic IP routing:** enables automatic routing with up to 16 external routes—including one default route—in IP networks

- **IP multicast (IGMPv3 snooping):** automatically prevents flooding of IP multicast traffic

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** supports up to 6 trunks, each with up to 4 links (ports) per trunk

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **RMON:** provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **802.1X and RADIUS network login:** control port-based access for authentication and accountability

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure CLI remote access over IP networks

- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

- **Secure access to manage the switches:** all access methods—CLI, GUI, or MIB—are securely encrypted through SSHv2, SSL, and/or SNMPv3

- **VLAN support and tagging:** support complete 802.1Q (4,096 VLAN IDs) and 253 VLANs simultaneously

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **Cisco Discovery Protocol (CDP):** enables real-time mapping of nodes to switch ports

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.1s Multi-Instance Spanning Tree:** high link availability in multiple VLAN environments by allowing multiple spanning trees

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

# ProCurve Switch 2600 Series

- **Friendly port names:** allow assignment of descriptive names to ports

- **Dual flash images:** provide independent primary and secondary OS files for backup while upgrading

- **Source port filtering:** allows only specified ports to communicate with each other

- **Web-based authentication:** similar to 802.1X, provides a browser-based environment to authenticate clients that do not support the 802.1X supplicant

- **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network

- **Secure FTP:** allows secure file transfer to/from the switch (protects against unwanted file downloads or unauthorized copying of switch configuration file)

- **Port security:** prevents unauthorized access using MAC address lockdown

- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers

- **Class of Service (CoS):** sets 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

- **Traffic prioritization (802.1p):** allows real-time traffic classification into 8 priority levels mapped to 4 queues

- **Troubleshooting:** Ingress/egress port monitoring enables network problem solving (ProCurve Switch 2626 and 2626-PWR only)

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

# ProCurve Switch 2600 Series

## Services

### ProCurve Switch 2626

• 3-year, 4-hour onsite, 13x5 coverage for hardware (U4683A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (U4835A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6321A/E)

• Installation with minimum configuration, system-based pricing (U4826A/E)

• Installation with HP-provided configuration, system-based pricing (U4830A/E)

### ProCurve Switch 2626-PWR

• 3-year, 4-hour onsite, 13x5 coverage for hardware (U2855A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (U2856A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6304A/E)

• Installation with minimum configuration, system-based pricing (U4826A/E)

• Installation with HP-provided configuration, system-based pricing (U4830A/E)

### ProCurve Switch 2650

• 3-year, 4-hour onsite, 13x5 coverage for hardware (H5481A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (U6303A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6302A/E)

• Installation with minimum configuration, system-based pricing (U4826A/E)

• Installation with HP-provided configuration, system-based pricing (U4830A/E)

### ProCurve Switch 2650-PWR

• 3-year, 4-hour onsite, 13x5 coverage for hardware (H4496A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (H2893A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6319A/E)

• Installation with minimum configuration, system-based pricing (U4826A/E)

• Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Accessories

**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**
See page 71 for details.

**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**
See page 71 for details.

**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**
See page 71 for details.

**ProCurve 600 Redundant/External Power Supply (J8168A)** (2650-PWR and 2626-PWR only)
See page 74 for details.

**ProCurve 610 External Power Supply (J8169A)** (2650-PWR and 2626-PWR only)
See page 74 for details.

# ProCurve Switch 2600 Series

## Specifications





| | ProCurve Switch 2626 (J4900A) | ProCurve Switch 2626-PWR (J8164A) |
|---|---|---|
| **Ports** | 24 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)<br>1 RS-232C DB-9 console port | 24 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)<br>1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 17.32 x 12.8 x 1.73 in. (43.99 x 32.51 x 4.39 cm) (1U height) | 18.03 x 17.42 x 1.75 in. (45.8 x 44.25 x 4.45 cm) (1U height) |
| Weight (fully loaded) | 9.15 lb. (4.12 kg) | 11.5 lb. (5.18 kg) |
| **Memory and processor** | | |
| Processor type and speed | Motorola PowerPC MPC8245 @ 266 MHz | Motorola PowerPC MPC8245 @ 266 MHz |
| Flash capacity | 8 MB | 8 MB |
| SDRAM | 32 MB | 32 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | |
| Latency | <13.3 µs (LIFO) | <12 µs (LIFO) |
| Throughput | Up to 6.6 million pps | Up to 6.6 million pps |
| Routing/Switching capacity | 9.6 Gbps | 9.6 Gbps |
| Address table size | 8,000 entries | 8,000 entries |
| **Environment** | | |
| Operating temperature | 32°F to 131°F (0°C to 55°C) | 32°F to 122°F (0°C to 50°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | |
| Maximum BTUs | 341 BTU/hr | 2,288 BTU/hr |
| Voltage | 100–120 VAC/200–240 VAC | 100–120 VAC/200–240 VAC |
| Current | 1.5 A | 6.4 A |
| Power | 100 W | 631 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 SNTP; IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 SNTP; IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB |

# ProCurve Switch 2600 Series

## Specifications

| | ProCurve Switch 2650 (J4899A) | ProCurve Switch 2650-PWR (J8165A) |
|---|---|---|
| **Ports** | 48 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)<br>1 RS-232C DB-9 console port | 48 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 dual-personality ports—each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)<br>1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 17.32 x 12.8 x 1.75 in. (43.99 x 32.51 x 4.45 cm) (1U height) | 18.03 x 17.42 x 1.75 in. (45.8 x 44.25 x 4.45 cm) (1U height) |
| Weight (fully loaded) | 9.78 lb. (4.4 kg) | 16.31 lb. (7.34 kg) |
| **Memory and processor** | | |
| Processor type and speed | Motorola PowerPC MPC8245 @ 266 MHz | Motorola PowerPC MPC8245 @ 266 MHz |
| Flash capacity | 8 MB | 8 MB |
| SDRAM | 32 MB | 32 MB |
| **Mounting** | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only | Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only |
| **Performance** | | |
| Latency | <13.3 µs (LIFO) | <12 µs (LIFO) |
| Throughput | Up to 10.1 million pps | 10.1 million pps |
| Routing/Switching capacity | 13.6 Gbps | 13.6 Gbps |
| Address table size | 8,000 entries | 8,000 entries |
| **Environment** | | |
| Operating temperature | 32°F to 131°F (0°C to 55°C) | 32°F to 122°F (0°C to 50°C) |
| Operating relative humidity | 15% to 95% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 15% to 95% @ 149°F (65°C), non-condensing |
| Altitude | Up to 15,091 ft. (4.6 km) | Up to 15,091 ft. (4.6 km) |
| **Electrical characteristics** | | |
| Maximum BTUs | 341 BTU/hr | 2,288 BTU/hr |
| Voltage | 100–120 VAC/200–240 VAC | 100–120 VAC/200–240 VAC |
| Current | 1.5 A | 6.4 A |
| Power | 100 W | 631 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| EN | 55024/CISPR 24 | 55024/CISPR 24 |
| ESD | IEC 61000-4-2, 4 kV CD, 8 kV AD | IEC 61000-4-2, 4 kV CD, 8 kV AD |
| Radiated | IEC 61000-4-3, 3V/m | IEC 61000-4-3, 3V/m |
| EFT/Burst | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) | IEC 61000-4-4, 1.0 kV (power line), 0.5 kV (signal line) |
| Surge | IEC 61000-4-5, 1 kV/2 kV AC | IEC 61000-4-5, 1 kV/2 kV AC |
| Conducted | IEC 61000-4-6, 3V | IEC 61000-4-6, 3V |
| Power frequency magnetic field | IEC 61000-4-8, 1A/m, 50 or 60 Hz | IEC 61000-4-8, 1A/m, 50 or 60 Hz |
| Voltage dips and interruptions | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods | IEC 61000-4-11, >95% reduction, 0.5 period; 30% reduction, 25 periods |
| Harmonics | EN 61000-3-2/IEC 61000-3-2 | EN 61000-3-2/IEC 61000-3-2 |
| Flicker | EN 61000-3-3/IEC 61000-3-3 | EN 61000-3-3/IEC 61000-3-3 |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 SNTP; IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB | RFC 783 TFTP; RFC 951 BootP; RFC 1542 BootP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 SNTP; IEEE 802.3X Flow Control; RFC 2236 IGMP v1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; SSHv1/SSHv2 Secure Shell; Secure Sockets Layer (SSL); IEEE 802.1X Network Login; 802.3af Power over Ethernet; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c/v3; Cisco Discovery Protocol (CDP); HTML and telnet management; RFC 1493 Bridge MIB; RFC 1213 MIB II; RFC 2096 IP Forwarding Table MIB; RFC 2737 Entity MIB; RFC 2863 Evolution of Interface; RFC 2665 Ethernet MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 2021 RMON probe configuration (RMON v2); RFC 2668 802.3 MAU MIB; RFC 2613 SMON; RFC 2674 802.1p and IEEE 802.1Q Bridge MIB; RFC 2618 RADIUS Client MIB |

# ProCurve Switch 2500 Series

The ProCurve Switch 2500 series consists of low-cost, stackable, managed 24- and 12-port switches with 10/100 auto-sensing per port and 2 open transceiver slots for Gigabit or 100Base-FX. ProCurve Switches 2524 and 2512 offer HP/IEEE Auto-MDIX on all 10/100 ports and high-availability features. ProCurve Switches 2524 and 2512 are ideal for low-cost migration to 10/100 managed switching with uplinks.

ProCurve Switch 2512 (J4812A)                ProCurve Switch 2524 (J4813A)

# ProCurve Switch 2500 Series

## Features and benefits

- **9.6 Gbps switch fabric integrated on-chip:** high-performance switch design with a non-blocking architecture

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 ports

- **RMON, XRMON, and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **Web interface:** allows you to configure the switch from any Web browser on the network

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support a single trunk with up to 4 links (ports)

- **VLAN support and tagging:** support up to 30 port-based VLANs and dynamic configuration of 802.1Q VLAN tagging, providing security between workgroups

- **Group VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs

- **IP multicast (IGMPv3):** automatically prevents flooding of IP multicast traffic

- **Port security:** prevents unauthorized access using MAC address lockdown

- **Spanning Tree Protocol:** provides redundant links while preventing network loops

- **IEEE 802.1p prioritization:** delivers data to devices based on the priority and type of traffic

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links

- **802.1X and RADIUS network login:** control port-based access for authentication and accountability

- **Cisco Discovery Protocol (CDP):** enables real-time mapping of nodes to switch ports

- **Friendly port names:** allows assignment of descriptive names to ports

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U4683A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U4835A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6321A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 2500 Series

## Specifications

| | ProCurve Switch 2512 (J4812A) | ProCurve Switch 2524 (J4813A) |
|---|---|---|
| **Ports** | 12 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 open transceiver slots<br>1 RS-232C DB-9 console port | 24 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)<br>2 open transceiver slots<br>1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 17.4 x 8 x 1.8 in. (44.2 x 20.32 x 4.57 cm) (1U height) | 17.4 x 8 x 1.8 in. (44.2 x 20.32 x 4.57 cm) (1U height) |
| Weight (fully loaded) | 6 lb. (2.7 kg) | 6 lb. (2.7 kg) |
| **Memory and processor** | | |
| Processor type and speed | ARM7TDMI @ 62.5 MHz | ARM7TDMI @ 62.5 MHz |
| Packet buffet size | 6 MB | 6 MB |
| RAM/ROM capacity | 26 MB | 26 MB |
| Flash capacity | 2 MB | 2 MB |
| **Mounting** | Mounts in a standard 19 in. rack (hardware included) | Mounts in a standard 19 in. rack (hardware included) |
| **Performance** | | |
| Latency | <10 µs (LIFO) | <10 µs (LIFO) |
| Throughput | 4.8 million pps (64-byte packets) | 6.6 million pps (64-byte packets) |
| Switching capacity | 9.6 Gbps | 9.6 Gbps |
| Address table size | 4,096 entries | 4,096 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 95% @ 149°F (65°C), non-condensing | 90% @ 149°F (65°C), non-condensing |
| Shock and vibration | HP759, HP760 (similar to EN 60068, IEC 68) | HP759, HP760 (similar to EN 60068, IEC 68) |
| **Electrical characteristics** | | |
| Maximum BTUs | 123 BTU/hr | 123 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 2.4 A/1.2 A | 2.4 A/1.2 A |
| Power | 36 W | 36 W |
| Frequency | Frequency: 50/60 Hz | Frequency: 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| Generic | EN 50082-1 | EN 50082-1 |
| ESD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD |
| Radiated | IEC/EN 61000-4-3; 3V/m | IEC/EN 61000-4-3; 3V/m |
| EFT/Burst | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus; command line interface; Web browser; configuration menu; out-of-band management (serial RS-232C) |
| **Standards and protocols** | IEEE 802.3X Flow Control; RFC 3376 IGMPv1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; IEEE 802.1X Network Login; IEEE 802.1Q VLANs; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c; Cisco Discovery Protocol (CDP); RFC 1493 Bridge MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 3164 Syslog; XRMON; RFC 2613 SMON; RFC 2674 802.1p and I EEE 802.1Q Bridge MIB | IEEE 802.3X Flow Control; RFC 3376 IGMPv1/v2/v3; IEEE 802.1D Spanning Tree; IEEE 802.1w Rapid Convergence Spanning Tree; IEEE 802.3ad Link Aggregation Control Protocol; Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+; IEEE 802.1X Network Login; IEEE 802.1Q VLANs; IEEE 802.1Q GVRP; IEEE 802.1p Priority; SNMPv1/v2c; Cisco Discovery Protocol (CDP); RFC 1493 Bridge MIB; RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events); RFC 3164 Syslog; XRMON; RFC 2613 SMON; RFC 2674 802.1p and I EEE 802.1Q Bridge MIB |

# ProCurve Switch 2500 Series

## ProCurve 100-FX SC Transceiver (J4853A)

**Ports**
1 100Base-FX port (IEEE 802.3u Type 100Base-FX)
Connector: SC
Duplex: half or full (full duplex only when installed in unmanaged switches)

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 2 km (full-duplex) or 412 m (half-duplex)

## ProCurve Gigabit LX Transceiver (J4132A)

**Ports**
1 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: either single mode or multimode
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
• 9/125 µm (core/cladding) diameter, 1310 nm, low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1
Maximum distance: 10 km (single mode) or 550 m (multimode)

**Notes**
A mode conditioning patch cord may be needed in some multimode fiber installations.

## ProCurve Switch Gigabit Stacking Kit (J4116A)

**Ports**
2 Gigabit transceivers (1 HSSDC port each)
Connector: HSSDC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Included with product
Maximum distance: 23.5 inches

## ProCurve 100/1000-T Transceiver (J4834A)

**Ports**
1 auto-sensing 10/100 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX)
Connector: RJ-45
Duplex:
• 100Base-TX: half or full
• 1000Base-T: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.11 lb. (0.05 kg)

**Cabling**
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

## ProCurve Gigabit SX Transceiver (J4131B)

**Ports**
1 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance:
• 220 m (62.5 µm core diameter, 160 MHz x km bandwidth)
• 275 m (62.5 µm core diameter, 200 MHz x km bandwidth)
• 500 m (50 µm core diameter, 400 MHz x km bandwidth)
• 550 m (50 µm core diameter, 500 MHz x km bandwidth)

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch 4000m and Switch 8000m

The ProCurve Switch 4000m and 8000m are managed modular 10/100/1000 desktop switches that provide scalable, expandable, low-cost migration to 10/100 switching for the desktop with Gigabit uplinks. The ProCurve 4000m and 8000m are a simple way to build high-availability networks. The ProCurve 4000m includes 40 auto-sensing 10/100 ports and 5 open module slots. The ProCurve 8000m provides 10 open module slots.
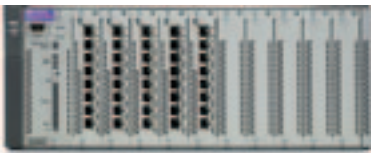
ProCurve Switch 4000m (J4121A)          ProCurve Switch 8000m (J4110A)

# ProCurve Switch 4000m and Switch 8000m

## Features and benefits

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2600 series, 2800 series, 3400cl series, 4000m, 6108, 8000m, and 4100gl series

- **RMON and XRMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

- **Port monitoring:** allows you to monitor traffic using a switched port so you can view several ports at one time with a network analyzer

- **Web interface:** allows you to configure the switch from any Web browser on the network

- **Protocol filtering:** provides traffic control

- **VLAN support and tagging:** support up to 30 port-based VLANs and dynamic configuration of 802.1Q VLAN tagging, providing security between workgroups

- **Class of Service (CoS) tagging:** sets 802.1p priority field using policy-based management

- **IP multicast (IGMP):** automatically prevents flooding of IP multicast traffic

- **Port security:** prevents unauthorized access using MAC address lockdown

- **HP switch meshing:** dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth

- **Hot-swappable modules:** permit modules and mini-GBICs to be added or swapped without interrupting the network

- **Optional redundant power supply:** provides uninterrupted power

- **Spanning Tree Protocol:** provides redundant links while preventing network loops

- **802.3ad Link Aggregation Control Protocol (LACP) and HP trunking:** support up to 10 trunks, each with up to 4 links (ports) per trunk; trunking across modules is supported

- **Cisco Fast EtherChannel® (FEC):** supports Cisco's proprietary FEC trunking protocol

- **Automatic broadcast control (ABC):** minimizes IP and IPX broadcast traffic throughout the network

- **TACACS+:** eases switch management security administration by using a password authentication server

- **Cisco Discovery Protocol (CDP):** enables real-time mapping of nodes to switch ports

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

# ProCurve Switch 4000m and Switch 8000m

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5481A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6303A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6302A/E)

- Installation with minimum configuration, system-based pricing (U4827A/E)

- Installation with HP-provided configuration, system-based pricing (U4831A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 4000m and Switch 8000m

## Specifications

|  | ProCurve Switch 4000m (J4121A) | ProCurve Switch 8000m (J4110A) |
|---|---|---|
| **Ports** | 5 open module slots<br>40 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T,<br>  IEEE 802.3u Type 100Base-TX)<br>1 RS-232C DB-9 console port | 10 open module slots<br>1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 17.4 x 13.2 x 7 in. (44.2 x 33.53 x 17.78 cm)<br>  (4U height) | 17.4 x 13.2 x 7 in. (44.2 x 33.53 x 17.78 cm)<br>  (4U height) |
| Weight (fully loaded) | 22.9 lb. (10.31 kg) | 20.7 lb. (9.32 kg) |
| **Memory and processor** | | |
| Fabric processor type and speed | Intel® i960JD @ 66 MHz | Intel® i960JD @ 66 MHz |
| Packet buffer size | 512 KB/port (10/100 ports);<br>4 MB/port (Gigabit ports) | 512 KB/port (10/100 ports);<br>4 MB/port (Gigabit ports) |
| RAM/ROM capacity | 16 MB | 16 MB |
| Flash capacity | 2 MB | 2 MB |
| **Mounting** | Mounts in a standard 19 in. rack (hardware included) | Mounts in a standard 19 in. rack (hardware included) |
| **Performance** | | |
| Latency | <10 µs (LIFO) | <10 µs (LIFO) |
| Throughput | 4.67 million pps | 4.67 million pps |
| Switch fabric speed | 3.8 Gbps | 3.8 Gbps |
| Address table size | 10,000 entries | 10,000 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 90% @ 149°F (65°C), non-condensing | 15% to 90% @ 149°F (65°C), non-condensing |
| Shock and vibration | EN 60068 (IEC 68) | EN 60068 (IEC 68) |
| **Electrical characteristics** | | |
| Maximum BTUs | 535 BTU/hr | 535 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 2.0 A /1.0 A | 2.0 A /1.0 A |
| Power | 157 W | 157 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950;<br>NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950;<br>NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| Generic | EN 50082-1 | EN 50082-1 |
| ESD | IEC 801-2; 4 kV CD, 8 kV AD | IEC 801-2; 4 kV CD, 8 kV AD |
| Radiated | IEC 801-3; 3V/m | IEC 801-3; 3V/m |
| EFT/Burst | IEC 801-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC 801-4; 1.0 kV (power line), 0.5 kV (signal line) |
| **Management** | ProCurve Manager (included); ProCurve Manager Plus;<br>command line interface; Web browser; configuration menu;<br>out-of-band management (serial RS-232C) | ProCurve Manager (included); ProCurve Manager Plus;<br>command line interface; Web browser; configuration menu;<br>out-of-band management (serial RS-232C) |
| **Standards and protocols** | IEEE 802.3X Flow Control; IEEE 802.1D Spanning Tree;<br>IEEE 802.3ad Link Aggregation Control Protocol;<br>Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+;<br>IEEE 802.1Q VLANs; IEEE 802.1p Priority; SNMPv1/v2c;<br>Cisco Discovery Protocol (CDP); RFC 1493 Bridge MIB;<br>RFC 2819 Four groups of RMON: 1 (statistics),<br>2 (history), 3 (alarm), and 9 (events); XRMON | IEEE 802.3X Flow Control; IEEE 802.1D Spanning Tree;<br>IEEE 802.3ad Link Aggregation Control Protocol;<br>Cisco Fast EtherChannel® (FEC); RFC 1492 TACACS+;<br>IEEE 802.1Q VLANs; IEEE 802.1p Priority; SNMPv1/v2c;<br>Cisco Discovery Protocol (CDP); RFC 1493 Bridge MIB;<br>RFC 2819 Four groups of RMON: 1 (statistics),<br>2 (history), 3 (alarm), and 9 (events); XRMON |

# ProCurve Switch 4000m and Switch 8000m

## ProCurve Switch 10Base-FL Module (J4118A)

**Ports**
4 10Base-FL ports (IEEE 802.3j Type 10Base-FL)
Connector: ST
Duplex: half or full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type: 62.5/125 μm or 50/125 μm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 1 km

## ProCurve Switch 100/1000Base-T Module (J4115B)

**Ports**
1 auto-sensing 100/1000 port (IEEE 802.3u Type 100Base-TX; 802.3ab Type 1000Base-T)
HP Auto-MDIX: yes
Connector: RJ-45
Duplex:
• 100Base-TX: half or full
• 1000Base-T: full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type:
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

## ProCurve Switch Gigabit-LX Module (J4114A)

**Ports**
1 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type: either single mode or multimode
• 62.5/125 μm or 50/125 μm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
• 9/125 μm (core/cladding) diameter, 1310 nm, low metal content, single mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1
Maximum distance: 10 km (single mode) or 550 m (multimode)

## ProCurve Switch Gigabit-SX Module (J4113A)

**Ports**
1 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type: 62.5/125 μm or 50/125 μm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance:
• 220 m (62.5 μm core diameter, 160 MHz x km bandwidth)
• 275 m (62.5 μm core diameter, 200 MHz x km bandwidth)
• 500 m (50 μm core diameter, 400 MHz x km bandwidth)
• 550 m (50 μm core diameter, 500 MHz x km bandwidth)

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch 4000m and 8000m Modules

### ProCurve Switch 100Base-FX Module (J4112A)

**Ports**
4 100Base-FX ports (IEEE 802.3u Type 100Base-FX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance: 2 km (full-duplex) or 412 m (half-duplex)

**Notes**
A ProCurve 4000m/8000m Redundant Power Supply (J4119A) is required if more than 5 ProCurve Switch 100Base-FX modules (J4112A) are installed.

### ProCurve Switch 10/100Base-T Module (J4111A)

**Ports**
8 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX)
HP Auto-MDIX: no (ports are MDI-X)
Connector: RJ-45
Duplex: half or full

**Physical characteristics**
Dimensions: 7.1 x 6.5 x 1.4 in. (18.03 x 16.51 x 3.56 cm)
Weight: 0.56 lb. (0.25 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
Maximum distance: 100 m

### ProCurve Switch 4000m/8000m Redundant Power Supply (J4119A), not pictured

Only used with:
• J4110A ProCurve Switch 8000m
• J4121A ProCurve Switch 4000m

**Electrical characteristics**
Voltage: 100–127 VAC/200–240 VAC
Current: 2.0 A/1.0 A
Frequency: 50/60 Hz

**Physical characteristics**
Dimensions: 8.1 x 5.5 x 6.6 in. (20.57 x 13.97 x 16.76 cm)
Weight: 3.31 lb. (1.49 kg)

**Notes**
For additional RPS specification information, see the data sheet for the product in which the RPS is being installed.

Services for accessories are covered under the product in which they are installed.

# ProCurve Switch 2700 Series

The ProCurve Switch 2700 series consists of low-cost, unmanaged 24- and 8-port switches with 10/100/1000 auto-sensing per port. The ProCurve Switch 2724 and Switch 2708 offer HP/IEEE Auto-MDIX on all 10/100/1000 ports and are ideal for building networks with connectivity or any combination of 10 Mbit, 100 Mbit, and 1000 Mbit devices.

ProCurve Switch 2708 (J4898A)                  ProCurve Switch 2724 (J4897A)

# ProCurve Switch 2700 Series

## Features and benefits

- **Performance:** maximized throughput for all PCs and servers

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

- **10/100/1000 auto-sensing per port:** automatically detects and sets the speed for any 10Base-T, 100Base-TX, or 1000Base-T device

- **Unmanaged:** provides plug-and-play simplicity

- **Comprehensive LED display with per-port indicators:** provides an at-a-glance view of status, activity, speed, and full-duplex operation

- **Half/Full duplex auto-negotiating capability on every port:** doubles the throughput of every port

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

**ProCurve Switch 2708**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5484A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6300A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

**ProCurve Switch 2724**

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U9270A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U9271A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 2700 Series

## Specifications

| | ProCurve Switch 2708 (J4898A) | ProCurve Switch 2724 (J4897A) |
|---|---|---|
| **Ports** | 8 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet) | 24 RJ-45 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet) |
| **Physical characteristics** | | |
| Dimensions | 17.4 x 9.3 x 1.7 in. (44.2 x 23.62 x 4.32 cm) (1U height) | 17.4 x 9.3 x 1.7 in. (44.2 x 23.62 x 4.32 cm) (1U height) |
| Weight (fully loaded) | 6.8 lb. (3.06 kg) | 7.6 lb. (3.42 kg) |
| **Mounting** | Mounts in a standard 19 in. rack (hardware included) | Mounts in a standard 19 in. rack (hardware included) |
| **Performance** | | |
| Latency | <2.5 µs (LIFO) | <12 µs (LIFO) |
| Throughput | 11.9 million pps | 35.7 million pps |
| Switching capacity | 16 Gbps | 48 Gbps |
| Address table size | 8,000 entries | 32,000 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 90% @ 149°F (65°C), non-condensing | 15% to 90% @ 149°F (65°C), non-condensing |
| Shock and vibration | HP759, HP760 (similar to IEC 68) | HP759, HP760 (similar to IEC 68) |
| **Electrical characteristics** | | |
| Maximum BTU | 341 BTU/hr | 341 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 1.5 A | 1.5 A |
| Power | 100 W | 100 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| Generic | EN 50082-1 | EN 50082-1 |
| ESD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD |
| Radiated | IEC/EN 61000-4-3; 3V/m | IEC/EN 61000-4-3; 3V/m |
| EFT/Burst | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) |
| **Standards and protocols** | IEEE 802.3X Flow Control | IEEE 802.3X Flow Control |

# ProCurve Switch 2300 Series

The ProCurve Switch 2300 series consists of low-cost, unmanaged 24- and 12-port switches with 10/100 auto-sensing per port and 2 open transceiver slots for Gigabit or 100Base-FX uplinks. The ProCurve Switch 2324 and Switch 2312 offer HP/IEEE Auto-MDIX on all 10/100 ports.

ProCurve Switch 2312 (J4817A)

ProCurve Switch 2324 (J4818A)

# ProCurve Switch 2300 Series

## Features and benefits

- **9.6 Gbps switch fabric integrated on-chip:** high-performance switch design with a non-blocking architecture

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 ports

- **10/100 auto-sensing per port:** automatically detects and sets the speed for any 10Base-T or 100Base-TX device

- **Media-flexible uplink ports:** provides Gigabit or 100Base-FX ports for uplinks or server connections

- **Flow control:** ensures reliable communication during full-duplex operation

- **Unmanaged:** provides plug-and-play simplicity

- **Comprehensive LED display with per-port indicators:** provides an at-a-glance view of status, activity, speed, and full-duplex operation

- **Half/Full duplex auto-negotiating capability on every port:** double the throughput of every port

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5484A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6300A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Accessories

**ProCurve 100-FX SC Transceiver (J4853A)**
See page 73 for details.

**ProCurve 100/1000-T Transceiver (J4834A)**
See page 73 for details.

**ProCurve Gigabit LX Transceiver (J4132A)**
See page 72 for details.

**ProCurve Gigabit SX Transceiver (J4131B)**
See page 72 for details.

**ProCurve Switch Gigabit Stacking Kit (J4116A)**
See page 72 for details.

# ProCurve Switch 2300 Series

## Specifications

| | ProCurve Switch 2312 (J4817A) | ProCurve Switch 2324 (J4818A) |
|---|---|---|
| **Ports** | 12 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX) 2 open transceiver slots 1 RS-232C DB-9 console port | 24 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX) 2 open transceiver slots 1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 17.4 x 8 x 1.75 in. (44.2 x 20.32 x 4.45 cm) (1U height) | 17.4 x 8 x 1.75 in. (44.2 x 20.32 x 4.45 cm) (1U height) |
| Weight (fully loaded) | 6 lb. (2.7 kg) | 6 lb. (2.7 kg) |
| **Memory and processor** | | |
| Processor type and speed | ARM7TDMI @ 62.5 MHz | ARM7TDMI @ 62.5 MHz |
| Packet buffer size | 6 MB | 6 MB |
| RAM/ROM capacity | 26 MB | 26 MB |
| Flash capacity | 2 MB | 2 MB |
| **Mounting** | Mounts in a standard 19 in. rack (hardware included) | Mounts in a standard 19 in. rack (hardware included) |
| **Performance** | | |
| Latency | <10 µs (LIFO) | <10 µs (LIFO) |
| Throughput | 4.8 million pps | 6.6 million pps |
| Switching capacity | 9.6 Gbps | 9.6 Gbps |
| Address table size | 4,096 entries | 4,096 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% @ 104°F (40°C), non-condensing | 15% to 95% @ 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 15% to 90% @ 149°F (65°C), non-condensing | 15% to 90% @ 149°F (65°C), non-condensing |
| Shock and vibration | HP759, HP760 (similar to EN 60068, IEC 68) | HP759, HP760 (similar to EN 60068, IEC 68) |
| **Electrical characteristics** | | |
| Maximum BTUs | 123 BTU/hr | 123 BTU/hr |
| Voltage | 100–127 VAC/200–240 VAC | 100–127 VAC/200–240 VAC |
| Current | 2.4 A/1.2 A | 2.4 A/1.2 A |
| Power | 36 W | 36 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition | cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition |
| **Emissions** | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A | FCC Class A; EN 55022/CISPR-22 Class A; VCCI Class A |
| **Immunity** | | |
| Generic | EN 50082-1 | EN 50082-1 |
| ESD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD | IEC/EN 61000-4-2; 4 kV CD, 8 kV AD |
| Radiated | IEC/EN 61000-4-3; 3V/m | IEC/EN 61000-4-3; 3V/m |
| EFT/Burst | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) | IEC/EN 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) |
| **Standards and protocols** | IEEE 802.3X Flow Control | IEEE 802.3X Flow Control |

# ProCurve Switch 2124 (J4868A)

The ProCurve Switch 2124 is a low-cost, unmanaged 24-port switch with 10/100 auto-sensing per port and 1 open transceiver slot for a 100Base-FX uplink. The ProCurve Switch 2124 offers HP/IEEE Auto-MDIX on all 10/100 ports.

ProCurve Switch 2124 (J4868A)

# ProCurve Switch 2124

## Features and benefits

- **24 auto-sensing 10/100 ports:** high-performance switching

- **1U form factor:** the industry's most frequently requested size

- **Full scalability:** optional 100Base-FX fiber-optic (full duplex bandwidth) transceiver enables low-cost uplink connectivity into a wiring closet up to 2 km away

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 ports

- **Unmanaged:** provides plug-and-play simplicity

- **Use on desktop or rack mounted:** quiet operation enables flexible use

- **Low-cost/high-performance:** combines affordability, scalability, and ease-of-use

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5484A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6300A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Specifications

**Ports**
24 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)
1 open transceiver slot

**Physical characteristics**
Dimensions
17.4 x 8.0 x 1.8 in. (44.2 x 20.32 x 4.57 cm) (1U height)
Weight
8.25 lb. (3.71 kg)

**Memory**
Packet buffer size: 768 KB

**Mounting**
Mounts in a standard 19 in. rack (hardware included)

**Performance**
Latency: <8.5 µs (LIFO)
Switching capacity: 2.6 Gbps
Address table size: 4,096 entries

**Environment**
Operating
– Temperature: 32°F to 131°F (0°C to 55°C)
– Relative humidity: 15% to 95% at 104°F (40°C), non-condensing
Non-operating/Storage
– Temperature: –40°F to 158°F (–40°C to 70°C)
– Relative humidity: 90% at 149°F (65°C), non-condensing
Shock: HP759, HP760 (similar to EN 60068 IEC 68)
Acoustic: ISO 7779, DIN EN 27779 compliant (4.2 Bels)

**Electrical characteristics**
Max BTUs: 341 BTU/hr
Voltage: 100–240 VAC
Current: 1.0 A
Power: 100 W
Frequency: 50/60 Hz

**Safety**
cUL (CSA 950); EN 60950/IEC 60950; NOM-019-SCFI-1994; UL 1950 3rd edition

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

**Immunity**
Generic: EN 50082-1
EN: 55024/CISPR 24
ESD: IEC/EN 61000-4-2; 4 kV CD, 8 kV AD
Radiated: IEC/EN 61000-4-3; 3V/m
EFT/Burst: IEC/EN 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; 3V
Power frequency magnetic field: IEC 61000-4-8; 1A/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

**Standards and protocols**
IEEE 802.3X Flow Control

## Accessories

**ProCurve 100-FX SC Transceiver (J4853A)**
See page 73 for details.

# ProCurve Switch 408 (J4097B)

The ProCurve Switch 408 is a compact, unmanaged 8-port 10/100 switch that offers half/full duplex 10/100 auto-sensing on every port and HP/IEEE Auto-MDIX on all ports for easy expansion. Ideal for building small networks or connecting peripherals with any combination of 10 Mbit and 100 Mbit devices.

ProCurve Switch 408 (J4097B)

# ProCurve Switch 408

## Features and benefits

- **Auto-sensing:** 10/100 auto-sensing per port automatically detects and sets the speed for any 10Base-T or 100Base-TX device

- **HP/IEEE Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 ports

- **Flow control:** ensures reliable communications during full-duplex operation

- **Unmanaged:** provides plug-and-play simplicity

- **LED display:** comprehensive LED display with per-port indicators allows you to monitor status and activity of every port at a glance

- **Automatic polarity correction:** helps find and fix common cabling problems

- **Switch design:** delivers dedicated bandwidth to each device and uses segmentation to improve network utilization

- **Auto-negotiation:** half/full duplex auto-negotiation on every port automatically doubles the throughput to each device, up to 200 Mbps

- **Compact:** small footprint allows multiple mounting configurations on a flat surface, side-by-side, or in a standard rack

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (H5484A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U6300A/E)

- Installation with minimum configuration, system-based pricing (U4826A/E)

- Installation with HP-provided configuration, system-based pricing (U4830A/E)

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Switch 408

## Specifications

**Ports**
8 RJ-45 10/100 ports (IEEE 802.3
   Type 10Base-T, IEEE 802.3u
   Type 100Base-TX)
All ports HP Auto-MDIX

**Physical characteristics**
Dimensions
   7.8 x 4.8 x 1.6 in.
   (19.81 x 12.19 x 4.06 cm)
   (1U height)
Weight
   1.5 lb. (0.68 kg)

**Memory**
Packet buffer size: 64 KB per port
RAM/ROM capacity: 512 MB

**Mounting**
Mounts in a standard 19 in. rack
with optional four-way mounting kit

**Performance**
Address table size: 1,000 entries

**Environment**
Operating
– Temperature: 32°F to 131°F
   (0°C to 55°C)
– Relative humidity: 15% to 95% at
   104°F (40°C), non-condensing
Non-operating/Storage
– Temperature: –40°F to 158°F
   (–40°C to 70°C)
– Relative humidity: 90% at 149°F
   (65°C), non-condensing
Shock: EN 60068 (IEC 68)

**Electrical characteristics**
Max BTUs: 52 BTU/hr
Voltage: 100–127 VAC/
   200–240 VAC
Current: 0.4 A /0.2 A
Power: 15 W
Frequency: 50/60 Hz

**Safety**
CSA 950; EN 60950/IEC 60950;
   NOM-019-SCFI-1994; UL 1950

**Emissions**
FCC Class A; VCCI Class A; EN
   55022:1998/CISPR-22:1997
   Class A

**Immunity**
Generic: EN 55022:1998/CISPR
   22:1997
ESD: IEC 61000-4-3:1995; 4 kV
   CD, 8 kV AD
Radiated: IEC/EN 61000-4-3:
   1995; 3V/m
EFT/Burst: IEC 61000-4-4:1995;
   1.0 kV (power line), 0.5 kV
   (signal line)
Surge: IEC 61000-4-5:1995;
   1 kV/2 kV AC
Conducted: IEC 61000-4-6:1996;
   3V
Power frequency magnetic field:
   IEC 61000-4-8:1993; 1A/m,
   50 or 60 Hz
Voltage dips and interruptions:
   IEC 61000-4-11:1994,
   >95% reduction, 0.5 period;
   30% reduction, 25 periods
Harmonics:
   EN 61000-3-2:1995/
   IEC 61000-3-2:1995
Flicker:
   EN 61000-3-3:1995/
   IEC 61000-3-3:1994

**Standards and protocols**
IEEE 802.3X Flow Control

## Accessories

**Mounting Kit (5183-7210)**

# ProCurve Switch Accessories

# ProCurve Mini-GBICs



**ProCurve Gigabit-SX-LC Mini-GBIC (J4858A)**

**Ports**
One 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Connector: LC
Duplex: full

**Physical characteristics**
Dimensions: 2.28 x 0.51 x 0.51 in.
   (5.79 x 1.30 x 1.30 cm)
Weight: 0.04 lb. (0.02 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index,
   low metal content, multimode fiber-optic, complying with ITU-T G.651 and
   ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance:
• 220 m (62.5 µm core diameter, 160 MHz x km bandwidth)
• 275 m (62.5 µm core diameter, 200 MHz x km bandwidth)
• 500 m (50 µm core diameter, 400 MHz x km bandwidth)
• 550 m (50 µm core diameter, 500 MHz x km bandwidth)



**ProCurve Gigabit-LX-LC Mini-GBIC (J4859A)**

**Ports**
One 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Connector: LC
Duplex: full

**Physical characteristics**
Dimensions: 2.28 x 0.51 x 0.51 in. (5.79 x 1.30 x 1.30 cm)
Weight: 0.04 lb. (0.02 kg)

**Cabling**
Type: either single mode or multimode
• 9/125 µm (core/cladding) diameter, 1310 nm, low metal content,
   single mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2
   Type B1
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index,
   low metal content, multimode fiber-optic, complying with ITU-T G.651
   and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning
   patch cord may be needed in some multimode fiber installations)
Maximum distance: 10 km (single mode) or 550 m (multimode)



**ProCurve Gigabit-LH-LC Mini-GBIC (J4860A)**

**Ports**
One 1000Base-LH port (no IEEE standard exists for 1550 nm optics)
Connector: LC
Duplex: full

**Physical characteristics**
Dimensions: 2.28 x 0.51 x 0.51 in. (5.79 x 1.30 x 1.30 cm)
Weight: 0.04 lb. (0.02 kg)

**Cabling**
Type: 9/125 µm (core/cladding) diameter, 1550 nm, low metal content,
   single mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2
   Type B1
Maximum distance: 70 km

## Used with the following

**ProCurve 9300 EP 8-Port Mini-GBIC Redundant
Management Module (J4885A)**

**ProCurve 9300 EP 16-Port Mini-GBIC Module (J4894A)**

**ProCurve Switch 5304xl-32G (J4866A)**

**ProCurve Switch 5308xl-48G (J4867A)**

**ProCurve Switch xl 4-Port Mini-GBIC Module (J4878A)**

**ProCurve Switch xl 16-Port 10/100/1000 Module
(J4907A)**

**ProCurve Switch 3400cl-24G (J4905A)**

**ProCurve Switch 3400cl-48G (J4906A)**

**ProCurve Switch 4160gl (J8152A)**

**ProCurve Switch 4140gl (J8151A)**

**ProCurve Switch gl 20-Port 10/100/1000 Module
(J4908A)**

**ProCurve Switch gl 6-Port Mini-GBIC Module (J4893A)**

**ProCurve Switch 6108 (J4902A)**

**ProCurve Switch 2848 (J4904A)**

**ProCurve Switch 2824 (J4903A)**

**ProCurve Switch 2650 (J4899A)**

**ProCurve Switch 2626 (J4900A)**

**ProCurve Switch 2650-PWR (J8165A)**

**ProCurve Switch 2626-PWR (J8164A)**

# ProCurve Transceivers



## ProCurve Switch Gigabit Stacking Kit (J4116A)

**Ports**
2 Gigabit transceivers (1 HSSDC port each)
Connector: HSSDC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: included with product
Maximum distance: 23.5 in.



## ProCurve Gigabit-SX Transceiver (J4131B)

**Ports**
One 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
Maximum distance:
• 220 m (62.5 µm core diameter, 160 MHz x km bandwidth)
• 275 m (62.5 µm core diameter, 200 MHz x km bandwidth)
• 500 m (50 µm core diameter, 400 MHz x km bandwidth)
• 550 m (50 µm core diameter, 500 MHz x km bandwidth)



## ProCurve Gigabit-LX Transceiver (J4132A)

**Ports**
One 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Connector: SC
Duplex: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: either single mode or multimode
• 9/125 µm (core/cladding) diameter, 1310 nm, low metal content, single mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning patch cord may be needed in some multimode fiber installations)
Maximum distance: 10 km (single mode) or 550 m (multimode)

## Used with the following

**ProCurve Switch 4108gl Bundle (J4861A)**

**ProCurve Switch gl Transceiver Module (J4864A)**

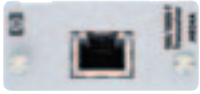**ProCurve Switch 2524 (J4813A)**

**ProCurve Switch 2512 (J4812A)**

**ProCurve Switch 2324 (J4818A)**

**ProCurve Switch 2312 (J4817A)**

Services for accessories are covered under the product in which they are installed.

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# ProCurve Transceivers

**ProCurve 100/1000-T Transceiver (J4834A)**

**Ports**
One auto-sensing 100/1000 port (IEEE 802.3u 100Base-TX and IEEE
  802.3ab 1000Base-T)
Connector: RJ-45
Duplex:
• 100Base-TX: half or full
• 1000Base-T: full

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.11 lb. (0.05 kg)

**Cabling**
Type:
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded
  twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE
  802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential
  4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP)
  balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

**ProCurve 100-FX SC Transceiver (J4853A)**

**Ports**
One 100Base-FX (IEEE 802.3u Type 100Base-FX)
Connector: SC
Duplex: half or full (full duplex only when installed in unmanaged switches)

**Physical characteristics**
Dimensions: 3.8 x 2.05 x 0.95 in. (9.65 x 5.21 x 2.41 cm)
Weight: 0.09 lb. (0.04 kg)

**Cabling**
Type: 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index,
  multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2
  Type A1b or A1a, respectively
Maximum distance: 2 km (full-duplex) or 412 m (half-duplex)

## Used with the following

**ProCurve Switch 4108gl Bundle (J4861A)**

**ProCurve Switch gl Transceiver Module (J4864A)**

**ProCurve Switch 2524 (J4813A)**

**ProCurve Switch 2512 (J4812A)**

**ProCurve Switch 2324 (J4818A)**

**ProCurve Switch 2312 (J4817A)**

**ProCurve Switch 2124 (J4868A)—**only the ProCurve
100-FX SC Transceiver (J4853A)

Services for accessories are covered under the product in which they are installed.

# ProCurve Power Supplies

ProCurve power supplies provide electrical power for Power over Ethernet (PoE) to connected PoE switches and modules to power devices such as IP phones and Wireless LAN access points that comply with the IEEE-802.3af PoE standard. In addition, only the 600 Redundant/External Power Supply provides redundant power to back up the power supply in a switch in case of loss of AC power or a fault condition.



ProCurve 600 Redundant/External Power Supply (J8168A)



ProCurve 610 External Power Supply (J8169A)

# ProCurve Power Supplies

## Features and benefits

### ProCurve 600 Redundant/External Power Supply

- **Power distribution on "as needed" basis:** monitors power signal from connected switch; when power from switch is no longer detected, provides power to the switch within 1 millisecond

- **Flexible configuration:** two modes of operation: Combined Mode provides full 12V RPS for Stackables and combines the -50V internal supply of the Stackable PoE and the -50V of the RPS/EPS unit for maximum PoE capability; RPS Mode provides RPS for the 12V and -50V supplies for the Stackable product line

- **RPS device prioritization:** if power to multiple connected switches fails, redundant power is provided to the highest priority switch; the lower the RPS port number, the higher the priority given

- **Redundant switch power (6 ports):** provides redundant power to any one of up to six switch products, to back up the power supply in a switch in case of loss of AC power or a fault condition

- **External switch power (2 ports):** provides external power to up to two PoE switch devices through two EPS ports; supports up to 15.4W per port on 48-port stackable

- **Hot plugging:** supports changing configuration of an RPS or EPS cable while the device is powered

- **Supports ProCurve chassis and stackable products:** power supply units can be configured to support both chassis and stackable switches

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

### ProCurve 610 External Power Supply

- **External switch power (4 ports):** provides external power to up to four PoE switches or modules through 4 EPS ports

  **HP patented EPS backup:** automatically provides power to another connected 610 unit in a stack in case of a power failure

- **Supports ProCurve chassis and stackable products:** power supply units can be cofigured to support both chassis and stackable switches

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U9270A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U9271A/E)

# ProCurve Power Supplies

## Specifications

| | ProCurve 600 Redundant/External Power Supply | ProCurve 610 External Power Supply |
|---|---|---|
| **Ports** | 6 redundant power supply ports<br>Restrictions: Each port can provide redundant +12 V power to a connected switch; only one port can provide power at a given time<br>2 external power supply ports<br>Restrictions: Provides +50 Vdc external PoE power to up to two switch devices.<br>Provides max of 408 W at full power to one device, and half power (204 W each) if connected to two devices | 4 external power supply ports<br>Restrictions: Provides +50 Vdc external PoE power to up to four switch devices<br>Each pair of EPS ports provides max of 408 W at full power to one device, and half power (204 W each) if connected to two devices<br>Total 816 W of power |
| **Physical characteristics** | | |
| Dimensions | 12.83 x 17.44 x 1.73 in. (32.6 x 44.3 x 4.4 cm) (1U height) | 17.3 x 19.02 x 1.73 in. (43.9 x 48.3 x 4.4 cm) (1U height) |
| Weight | 11.78 lb. (5.3 kg), fully loaded | 16.44 lb. (7.4 kg), fully loaded |
| **Mounting** | 1U rack-mountable and wall-mountable enclosure using standard mounting hardware | 1U rack-mountable and wall-mountable enclosure using standard mounting hardware |
| **Environment** | | |
| Operating temperature | 32°F to 131°F (0°C to 55°C) | 32°F to 122°F (0°C to 50°C) |
| Operating relative humidity | 15% to 95% at 104°F (40°C), non-condensing | 15% to 95% at 104°F (40°C), non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40 °F to 158 °F (–40°C to 70°C) |
| Altitude | up to 15,091 ft. (4.6 km) | up to 15,091 ft. (4.6 km) |
| Acoustic | Noise emission LwA=59.2 dB at virtual workspace according to DIN 45635 T.19 | Noise emission LwA=58 dB at virtual workspace according to DIN 45635 T.19 |
| **Electrical characteristics** | | |
| Description | The unit automatically adjusts to any voltage between 100–240 V and either 50 or 60 Hz | The unit automatically adjusts to any voltage between 110–240 V and either 50 or 60 Hz |
| Voltage | 100–240 VAC | 110–240 VAC |
| Current | 9 A/5 A | 11 A/6 A |
| RPS power | 204 W | |
| Power consumption | 821 W | 1130 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| Notes | | For Japan, the unit only operates at 200 V, 50 Hz, and 6 A. |
| **Safety** | CSA 22.2 No. 60950; UL 60950; EN 60950/IEC 60950 | CSA 22.2 No. 60950; UL 60950; EN 60950/IEC 60950 |
| **Emissions** | FCC Class A; FCC Part 15.107; CISPR-22; VCCI; ICES-003 (Canada) | FCC Class A; FCC Part 15.107; CISPR-22; VCCI; ICES-003 (Canada) |
| **Immunity** | | |
| Generic | CISPR-24 | CISPR-24 |
| **Management** | Unmanaged power supply—provides information via LEDs or through port interfaces of attached devices | Unmanaged power supply—provides information via LEDs or through port interfaces of attached devices |
| **Supported Devices** | ProCurve Switch 2600-PWR, ProCurve Switch 2800 series, ProCurve Switch 3400cl series, ProCurve Switch 5300xl series (xl PoE module only) | ProCurve Switch 2600-PWR, ProCurve Switch 5300xl series (xl PoE module only) |

# ProCurve Mobile LAN Products

# ProCurve Wireless Access Point 520wl (J8133A)

The ProCurve Wireless Access Point 520wl extends the range of your cabled environment to an entire building or campus by providing easy network access for mobile users or for hard-to-wire locations, such as conference rooms. The ProCurve Access Point 520wl is a high-performance bridge that features roaming, automatic channel selection, and Web-based configuration and management. It cost-effectively responds to the growing demands of enterprise and small-business users for anytime, anywhere access to files, e-mail, and the Internet. The ProCurve 520wl supports up to 250 wireless clients per radio slot and 64- and 128-bit RC4 Wired Equivalent Privacy (WEP) encryption.

ProCurve Wireless Access Point 520wl (J8133A)

# ProCurve Wireless Access Point 520wl

## Features and benefits

- **High-speed (54 Mbps) IEEE 802.11g support:** allows for selecting either IEEE 802.11b, 802.11g, or 802.11g with fallback support for 802.11b; requires ProCurve 802.11g Access Point Card 170wl

- **Investment protection:** the 520wl dual-slot, cardbus architecture provides users with the ability to support simultaneous, tri-mode (802.11 a, b, and g) operation by simply adding the appropriate ProCurve Access Point card

- **Secure mobility:**

  - **802.1X port-based access control:** secure yet flexible user authentication safeguards access to the wireless network; 802.1X support includes MD5, TLS, TTLS, and PEAP

  - **Enhanced encryption management:** per user/per session dynamic WEP key assignment and automatic key replacement significantly enhances wireless data privacy*

  - **16 VLAN and SSID support per radio card:** 802.1Q compliant VLAN assignment based on SSID association controls user access to network resources*

  - **Wi-Fi Protected Access™:** combines 802.1X user authentication with enhanced, industry-compatible encryption (TKIP) to secure network access and wireless data traffic*

  - **Unauthorized access point detection (rogue AP):** the access point employs both active and passive scanning to detect and report all active access points operating within range of the access point. Data from each scan is stored in the access point, available for query or sent to a management console using SNMP traps. Between user-configurable wireless network scans, SNMP traps are immediately generated upon detection of a new access point**

- **Wireless (bridge) access point repeating:** up to six wireless links are supported in each access point 520wl, with two configurations possible:

  - **Single-radio configuration**—supports wireless traffic to additional wireless bridge relay 520wl access points and local wireless clients within the cell

  - **Dual-radio configuration**—one radio supports wireless traffic to other wireless bridge relay 520wl access points; the second radio supports local wireless clients within the cell

  - **Wireless bridging:** supported on IEEE 802.11a, -b, and -g ProCurve Access Point radios

- **Auto Channel Select (ACS):** tests available channels and selects one based on signal strength. The available channel range is set by the regulatory agency responsible for your geographic region. The ProCurve Access Point 520wl scans appropriate channels and selects the radio frequency channel with the best signal-to-noise ratio (in other words, signal strength)

- **Local wireless bridge filter:** when enabled, prevents communication between wireless devices associated with the same access point

- **Adjustable output power:** controls cell size for high-density deployments*

- **External antenna connector:** supports the ProCurve family of 2.4 GHz wireless LAN external antennas and accessories to enhance wireless LAN deployments

- **Dual flash images:** enable auto-recovery upon unsuccessful access point software download

- **Remote configuration and management:** SNMPv3 and SSL protect unauthorized access to the management interface

* Feature requires use of ProCurve 802.11g Access Point Card 170wl
** Feature requires use of ProCurve 802.11a Access Point Card 170wl or 802.11g Access Point Card 170wl
*** Feature requires use of 802.11b Access Point Card 150wl

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# ProCurve Wireless Access Point 520wl

## Features and benefits (continued)

- **Quality of service:** support for quality of service protocol on Spectralink-based applications***

- **Software updates:** free downloads are available from the Web

- **Lifetime warranty:** for as long as you own the product with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U4683A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U4835A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6321A/E)

Installation services for ProCurve Wireless Access Point 520wl products are sold directly by HP. Contact your ProCurve Networking sales representative for details.

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Specifications

**Ports**
1 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX)
1 RS-232C DB-9 console port
2 CardBus slots support the following access point cards:
– ProCurve Wireless 802.11a
– ProCurve Wireless 802.11b
– ProCurve Wireless 802.11g

**Physical characteristics**
Dimensions
2 x 7.3 x 10.2 in.
(5.08 x 18.54 x 25.91 cm)
Weight
3.86 lb. (1.74 kg)

**Memory and processor**
SDRAM: 16 MB
Processor:
Intel SA100 @ 233 MHz
Flash ROM memory: 8 MB

**Mounting**
Includes metal mounting plate for placement on wall, ceiling, or table

**Environment**
Operating
– Temperature:
32°F to 104°F (0°C to 40°C)
– Relative humidity:
0% to 95%, non-condensing
Non-operating/Storage
– Temperature:
14°F to 122°F (–10°C to 50°C)
– Relative humidity:
0% to 95%, non-condensing

**Web interface**
Microsoft® Internet Explorer 5.5 or higher
Netscape Navigator 6.0 or higher

**Electrical characteristics**
Voltage: 100–240 VAC
Current: 0.7 A
Frequency: 47/63 Hz

**Safety**
EN/IEC 60950; UL 2043;
UL 60950

**Emissions**
EN 55022, Class B;
AS/NZS 3548, Class B;
FCC CFR 47 Part 15, Class B

**Immunity**
EN: 55024

**Standards and protocols**
RFC 783 TFTP;
RFC 951 BootP;
RFC 1542 BootP;
RFC 854 Telnet;
RFC 768 UDP; RFC 792 ICMP;
RFC 793 TCP; RFC 826 ARP;
IEEE 802.1D Spanning Tree;
RFC 2138 RADIUS;
RFC 2866 RADIUS accounting;

Secure Sockets Layer (SSL);
IEEE 802.1X Network Login;
IEEE 802.1Q VLANs;
IEEE 802.1Q VLAN tagging;
SNMPv1/v2c/v3;
HTML and telnet management;
RFC 1493 Bridge MIB;
RFC 1213 MIB II;
RFC 3164 Syslog;
IAPP (draft standard)

**Features**
Common to 802.11a, 802.11b, and 802.11g networks:
– HTTP, HTTPS interface for configuration and management
– Telnet/CLI
– SNMPv1, SNMPv2c, secure SNMPv3 management
– TFTP support
– 2-user VLAN support
– DHCP client
– DHCP server
– 802.1X support for MD5, TLS, PEAP, and TTLS
– MAC address control table
– Automatic Channel Select
– Roaming
– 64- and 128-bit WEP encryption
– Multiple RADIUS authentication server support (primary and secondary)
– 802.1d bridging with static MAC address filtering, Network protocol filtering, Proxy APR, Multicast/broadcast storm threshold filtering, TCP/UDP port filtering
– Intra-cell traffic filtering, Spanning Tree support, Standard and Orinoco traps
– Orinoco MIB, Etherlike MIB, 802.11 MIB, Bridge MIB, MIB-II
– Syslog
– ICMP echo response
– Link integrity
– Wireless (repeater) bridging over IEEE 802.11a, b, and g networks
– Station monitoring statistics
– Emergency reset to default configuration, hardware watchdog timer
– Closed system
– Plenum rated

Additionally, applicable to the 802.11g network:
– Wi-Fi Protected Access (WPA) support
– Per user/per session keying
– Supports up to 16 SSID/VLANs
– Separate management VLAN
– Rogue access point detection
– Adjustable transmit power control

Additionally, applicable to the 802.11a network:
– Fragmentation support for 802.11a network
– Up to 50 stations per radio control
– 802.1X with per user/per session keying
– Rogue access point detection

* Feature requires use of ProCurve 802.11g Access Point Card 170wl
** Feature requires use of ProCurve 802.11a Access Point Card 170wl or 802.11g Access Point Card 170wl
*** Feature requires use of 802.11b Access Point Card 150wl

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# ProCurve Wireless Access Point 520wl Accessories

**ProCurve Wireless 802.11g Access Point Card 170wl**

**11 CH (J8432A) North America**
**13 CH (J8430A) Europe and Asia, not Japan**
**14 CH (J8431A) Japan**

**Physical characteristics**
Dimensions: 4.75 x 2 x .25 in. (12.07 x 5.08 x 0.64 cm)
Weight: 0.25 lb. (113.4 g)

**Antenna**
Integrated diversity antenna with MC Card connector for external antenna use

**Regulatory compliance**
U.S.: FCC Part 15.247; Canada: RSS-210;
EU: EN 300 328-1, EN 300 328-2;
Japan: ARIB STD-33, ARIB STD-T66

**Radio characteristics**
**802.11g**
Modulation technique: Orthogonal Frequency Division Multiplexing (OFDM)
  64 QAM, 16 QAM, QPSK, BPSK with rate fallback
Media Access Protocol: CSMA/CA (Collision Avoidance) with ACK
Nominal output power: 17 dBm

| Data rate | 54 Mbps | 48 Mbps | 36 Mbps | 24 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –68 dBm | –70 dBm | –75 dBm | –80 dBm |

| Data rate | 18 Mbps | 9 Mbps | 6 Mbps |
|---|---|---|---|
| Receiver sensitivity | –84 dBm | –88 dBm | –89 dBm |

**802.11b**
Modulation technique: 802.11b Direct Sequence Spread Spectrum
  (CCK, DQPSK, DBPSK)
Media Access Protocal: CSMA/CA (Collision Avoidance) with ACK
Nominal output power: 15 dBm

| Data rate | 11 Mbps | 5.5 Mbps | 2 Mbps | 1 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –83 dBm | –85 dBm | –86 dBm | –90 dBm |

The ProCurve Wireless 802.11g Access Point Card 170wl is only supported in the ProCurve Wireless Access Point 520wl.



**ProCurve Wireless 802.11a Access Point Kit 160wl**

**(J8138A) North America, Australia**
**(J8148A) Singapore**
**(J8149A) Europe**
**(J8150A) Japan**

**Physical characteristics**
Dimensions: 11.0 x 9.5 x 1.0 in. (27.94 x 24.13 x 2.54 cm)
Weight: 0.5 lb. (226.8 g)

**Antenna**
Two integral omnidirectional 5 dBi antennae with diversity
0–180 degrees articulation

**Regulatory compliance**
U.S.: FCC Part 15.407; Canada: RSS-210;
EU: EN 301 893; Japan: ARIB STD-T71

**Radio characteristics**
**802.11a**
Modulation technique: Orthogonal Frequency Division Multiplexing (OFDM)
  64 QAM, QPSK, BPSK with rate fallback
Media Access Protocol: CSMA/CA (Collision Avoidance) with ACK
Output power: will vary with data rate by region (FCC, TELEC, ETSI)

| Data rate | 54 Mbps | 48 Mbps | 36 Mbps | 24 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –65 dBm | –69 dBm | –73 dBm | –77 dBm |

| Data rate | 18 Mbps | 12 Mbps | 9 Mbps | 6 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –80 dBm | –82 dBm | –84 dBm | –85 dBm |

The ProCurve Wireless 802.11a Access Point Kit 160wl is only supported in the ProCurve Wireless Access Point 520wl.

Services for accessories are covered under the product in which they are installed.

# ProCurve Wireless Access Point 520wl Accessories



**ProCurve Wireless 802.11b Access Point Card 150wl**

**13 CH (J8136A) Europe and Asia, not Japan**
**14 CH (J8137A) Japan**

**Physical characteristics**
Dimensions: 4.64 x 2.12 x 0.34 in. (11.79 x 5.38 x 0.86 cm)
Weight: 0.10 lb. (45.36 g)

**Regulatory compliance**
U.S.: FCC Part 15.247; Canada: RSS-210;
EU: EN 300 328-1, EN 300 328-2;
Japan: ARIB STD-33, ARIB STD-T66

**Radio characteristics**
**802.11b**
Modulation technique: direct sequence spread spectrum (CCK, DQPSK, DBPSK)
Spreading: 11-chip Barker Sequence
Media Access Protocol: CSMA/CA (collision avoidance) with ACK
Bit error rate (BER): better than 10–15
Nominal output power: 15 dBm

| Data rate | 11 Mbps | 5.5 Mbps | 2 Mbps | 1 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –82 dBm | –87 dBm | –91 dBm | –94 dBm |

The ProCurve Wireless 802.11b Access Point Card 150wl is only supported in the ProCurve Wireless Access Point 520wl.

## Additional Accessories*

**ProCurve 5 dBi Indoor/Outdoor Omnidirectional Antenna (J8441A)**
See page 93 for details.

**ProCurve 7 dBi Indoor/Outdoor Directional Antenna (J8443A)**
See page 93 for details.

**ProCurve 8 dBi Outdoor Omnidirectional Antenna (J8444A)**
See page 94 for details.

**ProCurve 11 dBi Indoor/Outdoor Wide Angle Directional Antenna (J8446A)**
See page 94 for details.

**ProCurve MC-Card to R-SMA Cable (J8447A)**
See page 94 for details.

**ProCurve 14 dBi Yagi Antenna (J8448A)**
See page 94 for details.



**ProCurve Wireless Range Extender Antenna 100wl (J8134A)**
With 2.5 dBi indoor omnidirectional antenna
For use with ProCurve Access Point Cards 150wl and 170wl

**Physical characteristics**
Dimensions: 9.1 x 1.0 x 0.3 in. (23.11 x 2.54 x 0.76 cm)
Weight: 0.3 lb. (136.08 g)
Base diameter: 2.8 in. (7.11 cm)

**Mounting**
Table stand and wall mounting bracket

**Cable length**
59 in. (1.5 m)

**Connector**
Proprietary (FCC compliant)

**Performance**
Open office: 50% increase over standard range
Antenna pattern: omnidirectional
Semi-open office: 15% increase over standard range
Antenna diversity: yes

**Environment**
Operating
– Temperature: 32°F to 131°F (0°C to 55°C)
– Relative humidity: 10% to 90% non-condensing
Non-operating/Storage
– Temperature: 14°F to 140°F (–10°C to 60°C)
– Relative humidity: 0% to 90% non-condensing

**Gain**
2.5 dBi

**Frequency**
2400–2484 MHz

*Not available in North America

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# ProCurve Wireless Access Point 420

The ProCurve Wireless Access Point 420 is a full-featured IEEE 802.11g, single-radio access point ideally suited for medium to large wireless LAN deployments. With integrated 802.3af Power over Ethernet, the ProCurve Wireless Access Point 420 offers a cost-effective means to deploy either an 802.11b or 802.11g wireless network. The ProCurve Access Point 420 addresses wireless security concerns by delivering the latest security based on industry standards, including support for IEEE 802.1X with per user/per session encryption, Wi-Fi Protected Access,™ and multiple VLAN support.

ProCurve Wireless Access Point 420 NA (J8130A)
ProCurve Wireless Access Point 420 WW (J8131A)

# ProCurve Wireless Access Point 420

## Features and benefits

- **Secure mobility:**

  - **802.1X port-based access control:** secure yet flexible user authentication safeguards access to the wireless network; 802.1X support includes MD5, TLS, TTLS, and PEAP

  - **Enhanced encryption management:** per user/per session dynamic WEP key assignment and automatic key replacement significantly enhances wireless data privacy

  - **802.1Q compliant VLAN support and tagging:** 64 VLANs capable of being independently mapped to RADIUS server attributes

  - **Wi-Fi Protected Access:** combines 802.1X user authentication with enhanced, industry-compatible encryption (TKIP) to secure network access and wireless data traffic

- **IEEE 802.11g single-radio design:** allows for selecting either IEEE 802.11b, 802.11g, or 802.11g with fallback support for 802.11b

- **IEEE 802.3af Power over Ethernet support:** simplifies deployment and dramatically reduces installation costs

- **Detachable antenna design:** enables use of external antenna configurations for improved radio coverage

- **Auto channel selection:** simplifies access deployment by testing all available channels and selecting the best channel based on signal-to-noise ratio

- **Remote configuration and management:** through Web browser or command line interface (CLI)

- **Dual flash images:** enables auto-recovery upon unsuccessful software download

- **Adjustable output power:** controls cell size for high-density deployments

- **International country configuration:** select the appropriate country and the access point automatically configures operation to match regulatory requirements (model J8131A only)

- **Local wireless bridge filter:** when enabled, prevents communication between wireless devices associated with the same access point

- **Interoperability:** Wi-Fi CERTIFIED™ to ensure IEEE 802.11g and multivendor interoperability

- **Software updates:** free downloads are available from the Web

- **Lifetime warranty:** for as long as you own the product with next-business-day advance replacement (available in most countries)

## Services

- 3-year, 4-hour onsite, 13x5 coverage for hardware (U4683A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware (U4835A/E)

- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6321A/E)

Installation services for ProCurve Wireless Access Point 420 products are sold directly by HP. Contact your ProCurve Networking sales representative for details.

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Wireless Access Point 420

| | ProCurve Wireless Access Point 420 NA (J8130A) | ProCurve Wireless Access Point 420 WW (J8131A) |
|---|---|---|
| **Ports** | 1 RJ-45 10/100 port (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX) <br> 1 RS-232C DB-9 console port | 1 RJ-45 10/100 port (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX) <br> 1 RS-232C DB-9 console port |
| **Physical characteristics** | | |
| Dimensions | 5.41 x 8.59 x 1.29 in. (13.74 x 21.82 x 3.28 cm) | 5.41 x 8.59 x 1.29 in. (13.74 x 21.82 x 3.28 cm) |
| Weight | 2.27 lb. (1.02 kg) including mounting bracket | 2.27 lb. (1.02 kg) including mounting bracket |
| **Memory** | | |
| Flash capacity | 4 MB | 4 MB |
| **Mounting** | Includes wall mounting bracket and related hardware | Includes wall mounting bracket and related hardware |
| **Environment** | | |
| Operating temperature | 32°F to 104°F (0°C to 40°C) | 32°F to 104°F (0°C to 40°C) |
| Operating relative humidity | 15% to 95%, non-condensing | 15% to 95%, non-condensing |
| Non-operating/storage temperature | –40°F to 158°F (–40°C to 70°C) | –40°F to 158°F (–40°C to 70°C) |
| Non-operating/storage relative humidity | 95% maximum (non-condensing) | 95% maximum (non-condensing) |
| **Web interface** | Microsoft Internet Explorer 5.5 or higher; Netscape Navigator 6.0 or higher | |
| **Electrical characteristics** | | |
| Maximum BTUs | 102 BTU/hr | 102 BTU/hr |
| Voltage | 100–240 VAC | 100–240 VAC |
| Current | 0.4 A | 0.4 A |
| Power | 30 W | 30 W |
| Frequency | 50/60 Hz | 50/60 Hz |
| **Safety** | UL 2043; UL 60950; EN 60950/IEC 60950 | UL 2043; UL 60950; EN 60950/IEC 60950 |
| **Emissions** | EN 55022, Class B; AS/NZS 3548, Class B; FCC Part 15.107; ICES-003, Class B; 15.109, Class B | EN 55022, Class B; AS/NZS 3548, Class B; FCC Part 15.107 ICES-003, Class B; and 15.109, Class B |
| **Immunity** | EN 55024; EN 301-489-1; EN 301-489-17 | EN 55024; EN 301-489-1; EN 301-489-17 |
| **Radio** | FCC Part 15.247; IC RSS 210; EN 300-328-1; EN 300-328-2; ARIB STD-T66; ARIB STD-33 | FCC Part 15.247; IC RSS 210; EN 300-328-1; EN 300-328-2; ARIB STD-T66; ARIB STD-33 |
| **Standards and protocols** | RFC 783 TFTP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; RFC 2138 RADIUS; IEEE 802.1X Network Login; IEEE 802.1Q VLANs; 802.3af Power over Ethernet; IEEE 802.1Q VLAN tagging; SNMPv1/v2c; HTML and telnet management; RFC 1213 MIB II; RFC 3164 Syslog; IAPP (draft standard) | RFC 783 TFTP; RFC 854 Telnet; RFC 768 UDP; RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 2030 Simple Network Time Protocol; RFC 2138 RADIUS; IEEE 802.1X Network Login; IEEE 802.1Q VLANs; 802.3af Power over Ethernet; IEEE 802.1Q VLAN tagging; SNMPv1/v2c; HTML and telnet management; RFC 1213 MIB II; RFC 3164 Syslog; IAPP (draft standard) |
| **Features** | Hardware reset button; External antenna connectors (R-SMA); Plenum rating; Kensington security slot; Wi-Fi CERTIFIED; HTTP interface for configuration and management; Telnet/CLI; SNMP agent; DHCP client; Roaming; 802.1X support for MD5, TLS, TTLS, and PEAP; Dynamic per user/per session encryption keys; Wi-Fi Protected Access (WPA); 64, 128, 152 bit WEP encryption; 128 bit AES encryption; Local MAC address filtering; RADIUS MAC address authentication; Reverse ARP; Syslog; Adjustable power output; Auto channel selection; 64 VLANs, Closed system; Local wireless bridge filtering; Selectable long or short preamble; Selectable beacon interval; Selectable DTIM interval; Selectable RTS/CTS; Selectable fragmentation threshold; Power over Ethernet Class 0 | |

**Radio characteristics**
**802.11g**
Modulation technique: Orthogonal Frequency Division Modulation (64 QAM, 16 QAM, QPSK, BPSK)
Media Access Protocol: CSMA/CA (Collision Avoidance) with ACK
Nominal output power: 15 dBm

| Data rate | 54 Mbps | 48 Mbps | 36 Mbps | 24 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –70 dBm | –73 dBm | –75 dBm | –80 dBm |

| Data rate | 18 Mbps | 12 Mbps | 9 Mbps | 6 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –82 dBm | –85 dBm | –85 dBm | –87 dBm |

**802.11b**
Modulation technique: 802.11b Direct Sequence Spread Spectrum (CCK, DQPSK, DBPSK)
Media Access Protocol: CSMA/CA (Collision Avoidance) with ACK
Nominal output power: 15 dBm

| Data rate | 11 Mbps | 5.5 Mbps | 2 Mbps | 1 Mbps |
|---|---|---|---|---|
| Receiver sensitivity | –87 dBm | –90 dBm | –90 dBm | –93 dBm |

# Additional Accessories

**ProCurve 5 dBi Indoor/Outdoor Omnidirectional Antenna (J8441A)** See page 93 for details.

**ProCurve 2 dBi Indoor Omnidirectional Diversity Antenna (J8442A)** See page 93 for details.

**ProCurve 7 dBi Indoor/Outdoor Directional Antenna (J8443A)** See page 93 for details.

**ProCurve 8 dBi Outdoor Omnidirectional Antenna (J8444A)** See page 94 for details.

**ProCurve 6.5 dBi Indoor/Outdoor Directional Diversity Antenna (J8445A)** See page 94 for details.

**ProCurve 11 dBi Indoor/Outdoor Wide Angle Directional Antenna (J8446A)** See page 94 for details.

Services for accessories are covered under the product in which they are installed.

# ProCurve Secure Access 700wl Series

The ProCurve Secure Access 700wl series solution delivers identity-based rights management, wireless data security, and secure subnet roaming, enabling network managers to increase business productivity by extending to mobile users secure and appropriate access to network services without risk to the network. Designed to reduce the cost and complexity of securing a mobile LAN, the ProCurve 700wl series easily integrates into existing authentication services, networks, and WLAN infrastructure, providing a superior return on IT investment. With centralized policy and system management, IT administrators can easily adjust user and security policies in response to evolving business needs.

ProCurve Access Controller 720wl (J8153A)

ProCurve Access Control Server 740wl (J8154A)

ProCurve Integrated Access Manager 760wl (J8155A)

# ProCurve Secure Access 700wl Series

## Features and benefits

- **Identity-driven policy management:**

  - **Rights-based network access control and management:** enables network administrators to easily create and maintain robust access policies that permit or deny mobile access to network resources based on user identity, location, and time of day

  - **Same mobile LAN network for all users:** no need to deploy separate networks since identity-based access control allows multiple types of users (employees, visitors, temporary workforce) on the same network to access specific network services without risk to network security or unauthorized access to sensitive data

  - **Precise control over who has access to what and when:** centrally managed access policies combined with edge enforced packet inspection allow for denying user access to specific network services at the edge of the network, including applications such as Internet or intranet Web access, FTP, telnet, specialized application servers, or any network element that can be identified by port and IP address

- **Centralized configuration and management:**

  - **The Administrative Console** of the ProCurve Access Control Server 740wl simplifies the deployment and management of a secure mobile LAN by providing a single place to create and manage user access policies, administer system-wide management, and monitor all ProCurve 700wl series components as well as all user activity.

  - **Multiple Administrator Accounts** enhance network security by offering three levels of access to the Administration Console, increasing network security and accountability by separating network management functions from access policy administration—both assigned and controlled by a super user account.

- **Access Control Server redundancy and failover:** offers high network availability for mission-critical mobile LAN deployments; in the event the primary Access Control Server should fail or become unreachable, a secondary server immediately steps in and takes over the management of all connected Access Controllers, ensuring uninterrupted mobile LAN access

- **Client-based bandwidth rate limiting:** prioritizes network bandwidth based on business need by setting limits on up- and downstream bandwidth based on user, group, time, and location

- **Roaming across subnets:** ensures that users maintain persistent connectivity to the network and applications

- **Wireless data privacy:**

  - Uses IPSec, PPTP, L2TP/IPSec, or SSH tunnels to encrypt wireless traffic with DES, 3DES, Blowfish, CAST, or AES to provide the utmost in wireless data privacy

  - Terminates client VPN sessions using non-proprietary, built-in VPN clients of Microsoft Windows and Apple Macintosh operating systems and third-party VPN clients

  - User authentication and appropriate access to network resources can be controlled at the edge of the network since all secure tunnels terminate within the ProCurve Access Controller 720wl or Integrated Access Manager 760wl

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# ProCurve Secure Access 700wl Series

## Features and benefits (continued)

- **Scalable:**

  – Scales up to 30 Gbps of throughput by simply adding additional ProCurve 720wl Access Controllers

  – Support for up to 10,000 users on a single Access Control Server

  – ProCurve Access Controller 720wl and Integrated Access Manager 760wl include two additional slots for expanding capabilities as network needs grow or change

  – ProCurve Access Controller 720wl and Integrated Access Manager 760wl include 4 10/100Base-TX Ethernet ports with expansion capability of up to 12 ports

- **Hardware encryption acceleration (optional):**

  – Increases data throughput by offloading DES and 3DES encryption processing on either the ProCurve Access Controller 720wl or Integrated Access Manager 760wl platforms

  – Enhances overall encryption performance during peak user activity

- **Standards-based authentication support for LDAP, Active Directory, and 802.1X:** seamlessly integrates into existing authentication services or uses the built-in database

- **802.1Q VLAN support:**

  – Supports standards-based tagging based on user or point of network access

  – Allows placement of wireless traffic on separate VLANs

  – Provides application of filters based on VLAN ID

- **Complete session logging:** provides detailed information for problem identification and resolution

- **Misconfigured service management and proxy redirection:** allow secure, transparent login for guests or users who have changed their client network configurations

- **Block MAC address spoofing:** prevents untrusted users from gaining access by spoofing a trusted user's MAC address

- **High-speed backbone connectivity:** connectivity to a Gigabit Ethernet backbone

- **Industry-leading warranty:** one-year next-business-day advance replacement (available in most countries) with extensions available

# ProCurve Secure Access 700wl Series

## Services

**ProCurve Access Control Server 740wl and ProCurve Access Controller 720wl**

• 3-year, 4-hour onsite, 13x5 coverage for hardware (U6449A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (U6448A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6322A/E)

• 1-year, post-warranty, parts only, global next-day advance exchange (U8142PA/PE)

• 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (U8143PA/PE)

• 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (U8144PA/PE)

• 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UA425PA/PE)

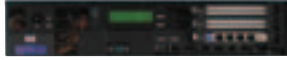**ProCurve Integrated Access Manager 760wl**

• 3-year, 4-hour onsite, 13x5 coverage for hardware (U6451A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware (U6450A/E)

• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6323A/E)

• 1-year, post-warranty, parts only, global next-day advance exchange (U8145PA/PE)

• 1-year, post-warranty, 4-hour onsite, 13x5 coverage for hardware (U8146PA/PE)

• 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware (U8147PA/PE)

• 1-year, post-warranty, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UA426PA/PE)

Installation services for ProCurve Secure Access 700wl series products are sold directly by HP. Contact your ProCurve Networking sales representative for details.
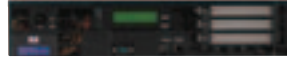
Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.
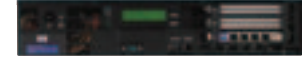
# ProCurve Secure Access 700wl Series

## Specifications

| | ProCurve Access Controller 720wl (J8153A) | ProCurve Access Control Server 740wl (J8154A) | ProCurve Integrated Access Manager 760wl (J8155A) |
|---|---|---|---|
| **Ports** | 2 open module slots<br>4 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet)<br>1 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)<br>1 RS-232C DB-9 console port | 1 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)<br>1 RS-232C DB-9 console port | 2 open module slots<br>4 RJ-45 10/100 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab 1000Base-T Gigabit Ethernet)<br>1 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)<br>1 RS-232C DB-9 console port |
| **Physical characteristics**<br>Dimensions<br><br>Weight | 17.3 x 15.6 x 3.5 in. (43.94 x 39.62 x 8.89 cm)<br>(2U height)<br>18 lb. (8.1 kg) | 17.3 x 15.6 x 3.5 in. (43.94 x 39.62 x 8.89 cm)<br>(2U height)<br>18 lb. (8.1 kg) | 17.3 x 15.6 x 3.5 in. (43.94 x 39.62 x 8.89 cm)<br>(2U height)<br>18 lb. (8.1 kg) |
| **Mounting** | Rack-mountable | Rack-mountable | Rack-mountable |
| **Web interface** | Microsoft Internet Explorer 5.5 or higher; Netscape Navigator 6.0 or higher | | |
| **Environment**<br>Operating temperature<br>Operating relative humidity<br>Non-operating/storage<br>  temperature | 41°F to 104°F (5°C to 40°C)<br>5% to 90% (non-condensing)<br><br>–13°F to 158°F (–25°C to 70°C) | 41°F to 104°F (5°C to 40°C)<br>5% to 90% (non-condensing)<br><br>–13°F to 158°F (–25°C to 70°C) | 41°F to 104°F (5°C to 40°C)<br>5% to 90% (non-condensing)<br><br>–13°F to 158°F (–25°C to 70°C) |
| **Electrical characteristics**<br>Voltage<br>Current<br>Power<br>Frequency | 100–240 VAC<br>2 A /1 A<br>125 W<br>Frequency: 50/60 Hz | 100–240 VAC<br>2 A /1 A<br>125 W<br>Frequency: 50/60 Hz | 100–240 VAC<br>2 A /1 A<br>125 W<br>Frequency: 50/60 Hz |
| **Safety** | UL 60950; CAN/CSA 22.2 No. 60950 | UL 60950; CAN/CSA 22.2 No. 60950 | UL 60950; CAN/CSA 22.2 No. 60950 |
| **Emissions** | FCC Class A; EN 55022 | FCC Class A; EN 55022 | FCC Class A; EN 55022 |

## Accessories*

### ProCurve Secure Access 700wl 4-Port 10/100 Card (J8156A)

**Ports**
4 auto-sensing 10/100 ports (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX)
Connector: RJ-45

**Physical characteristics**
Dimensions: 6.75 x 5 x 0.75 in. (17.15 x 12.7 x 1.91 cm)
Weight: 0.26 lb. (0.12 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
Maximum distance: 100 m

### ProCurve Secure Access 700wl 1-Port Gigabit-SX Card (J8157B)

**Ports**
1 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Connector: LC

**Physical characteristics**
Dimensions: 7 x 4.75 x 0.75 in. (17.78 x 12.07 x 1.91 cm)
Weight: 0.17 lb. (0.08 kg)

**Cabling**
Type: 62.5/125 μm or 50/125 μm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning patch cord may be needed in some multimode fiber installations)
Maximum distance:
• 220 m (62.5 μm core diameter, 160 MHz x km bandwidth)
• 275 m (62.5 μm core diameter, 200 MHz x km bandwidth)
• 500 m (50 μm core diameter, 400 MHz x km bandwidth)
• 550 m (50 μm core diameter, 500 MHz x km bandwidth)

**Notes**
Fiber-optic cable lengths up to 275 m at 62.5 μm, 550 m at 50 μm

*Accessories do not apply to the ProCurve Access Control Server 740wl.

Services for accessories are covered under the product in which they are installed.

# ProCurve Secure Access 700wl Series Accessories*

## ProCurve Secure Access 700wl 1-Port Gigabit-LX Card (J8158B)

**Ports**
1 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Connector: LC

**Physical characteristics**
Dimensions: 7 x 4.75 x 0.75 in. (17.78 x 12.07 x 1.91 cm)
Weight: 0.15 lb. (0.07 kg)

**Cabling**
Type: either single mode or multimode
• 9/125 µm (core/cladding) diameter, 1310 nm, low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, multimode fiber-optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively (a mode conditioning patch cord may be needed in some multimode fiber installations)
Maximum distance: 5 km (single mode) or 550 m (multimode)

**Notes**
Fiber-optic cable lengths up to 550 m at 62.5 or 50 µm in multimode, 5 km at 9 µm in single mode

## ProCurve Secure Access 700wl 1-Port 10/100/1000Base-T Card (J8159A)

**Ports**
1 auto-sensing 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab Type 1000Base-T)
Connector: RJ-45

**Physical characteristics**
Dimensions: 5.25 x 4.75 x 0.75 in. (13.34 x 12.07 x 1.91 cm)
Weight: .11 lb. (0.05 kg)

**Cabling**
Type:
• 10Base-T: Category 3 (or better) 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3 Type 10Base-T specifications
• 100Base-TX: Category 5 (or better), 100 Ω differential unshielded twisted pair (UTP) or shielded twisted pair (STP), complying with IEEE 802.3u 100Base-TX
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T
Maximum distance: 100 m

## ProCurve Secure Access 700wl Acceleration Card (J8160A)

Accelerates the cryptographic functions of DES, 3DES, HMAC-SHA-1, HMAC-MD5 encrypted data

**Ports**
1 auto-sensing 10/100/1000 port (IEEE 802.3 Type 10Base-T; 802.3u Type 100Base-TX; 802.3ab Type 1000Base-T)

**Physical characteristics**
Dimensions: 7 x 4.7 x 0.75 in. (17.78 x 11.94 x 1.91 cm)
Weight: 0.17 lb. (0.08 kg)

*Accessories do not apply to the ProCurve Access Control Server 740wl.

# ProCurve External Access Point Antennas

Certified for use with ProCurve 420 and 520wl wireless access points, the ProCurve family of access point antennas are specifically designed to meet the needs of today's most demanding wireless LAN deployments. ProCurve external antennas provide additional gain and shaping of RF signals to enhance coverage and radio signal predictability. The result is a highly reliable and scalable wireless network. Whether extending wireless connectivity within an office setting, warehouse, or retail environment or enabling campus-wide indoor and outdoor coverage, each external antenna includes the necessary installation hardware to quickly install a robust wireless network across an entire campus or for in-building environments.

# ProCurve External Access Point Antennas

## Features and benefits

- **High gain omnidirectional or directional antennas:** provide the installer with specific RF pattern characteristics to increase wireless coverage and signal gain or to overcome physical and RF interference conditions

- **Choice of indoor and outdoor antennas:** extend the reach of a ProCurve wireless LAN within an office setting, warehouse, or retail environment or for campus-wide indoor and outdoor coverage

- **Choice of mounting options:** ease of deployment—each ProCurve antenna includes the necessary mounting hardware to quickly get a wireless LAN network up and running

- **Certified external antennas:** specifically designed and certified for use with ProCurve wireless access points

- **Lifetime warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries)

## Services

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Specifications

| | ProCurve 5 dBi Indoor/Outdoor Omnidirectional Antenna (J8441A) | ProCurve 2 dBi Indoor Omnidirectional Diversity Antenna (J8442A) | ProCurve 7 dBi Indoor/Outdoor Directional Antenna (J8443A) |
|---|---|---|---|
| Frequency (MHz) | 2400–2500 | 2400–2500 | 2400–2500 |
| Gain dBi (with antenna cable) | 4.4 | 1.4 | 6.7 |
| VSWR max | 1.7:1 | 1.7:1 | 1.7:1 |
| E-Plane (3 dB beamwidth) | 31 degrees | 80 degrees | 50 degrees |
| H-Plane (3 dB beamwidth) | Omnidirectional | Omnidirectional | 65 degrees |
| Polarization | Linear (vertical) | Linear | Linear (vertical) |
| Impedance (Ohms) | 50 | 50 | 50 |
| Grounding | N/A | DC | N/A |
| RF connector | Reverse SMA (male) | Reverse SMA (male) | Reverse SMA (male) |
| Weight | 0.30 lb. (0.18 kg) | 0.4 lb. (0.18 kg) | 0.5 lb. (0.23 kg) |
| Mounting style | Ceiling T-bar, I-beam, or mast | Ceiling T-bar mount, recess T-bar spacers | Flush wall mount, articulating wall, or mast |
| Front-to-back ratio (dB) | N/A | N/A | 12 |
| Dimensions | N/A | 5.4 x 2.9 x 0.9 in. (13.72 x 7.37 x 2.29 cm) | 4.6 x 3.8 x 1.2 in. (11.68 x 9.65 x 3.05 cm) |
| Height | 11.5 in. (29.21 cm) | N/A | N/A |
| Wind surface area | 0.08 sq. ft. (0.01 sq. m) | N/A | N/A |
| Wind survival | 125 mph (201.13 km/hr) | N/A | N/A |
| Enclosure | Polycarbonate | ASA | UV stable PVC |
| Cable length | 2.75 ft. (0.84 m) | 2.75 ft. (0.84 m) | 2.75 ft. (0.84 m) |
| Operating temperature | –22°F to 131°F (–30°C to 55°C ) | –22°F to 131°F (–30°C to 55°C ) | –22°F to 131°F (–30°C to 55°C ) |
| Storage temperature | –40°F to 149°F (–40°C to 65°C ) | –40°F to 149°F (–40°C to 65°C ) | –40°F to 149°F (–40°C to 65°C ) |
| Certified for use on the following ProCurve wireless access points | ProCurve Wireless Access Point 420, ProCurve Wireless Access Point 520wl | ProCurve Wireless Access Point 420 | ProCurve Wireless Access Point 420, ProCurve Wireless Access Point 520wl |
| Regulatory restrictions | Not approved for use in North America with the ProCurve Wireless Access Point 520wl | Not approved for use in North America | Not approved for use in North America with the ProCurve Wireless Access Point 520wl |

# ProCurve External Access Point Antennas

## Specifications

| | ProCurve 8 dBi Outdoor Omnidirectional Antenna (J8444A) | ProCurve 6.5 dBi Indoor/Outdoor Directional Diversity Antenna (J8445A) | ProCurve 11 dBi Indoor/Outdoor Wide Angle Directional Antenna (J8446A) |
|---|---|---|---|
| Frequency (MHz) | 2400–2500 | 2400–2500 | 2400–2500 |
| Gain dBi (with antenna cable) | 7.4 | 6.4 | 10.4 |
| VSWR max | 1.5:1 | 1.7:1 | 1.7:1 |
| E-Plane (3 dB beamwidth) | 12 degrees | 55 degrees | 13 degrees |
| H-Plane (3 dB beamwidth) | Omnidirectional | 80 degrees | 120 degrees |
| Polarization | Linear (vertical) | Linear (vertical) | Linear (vertical) |
| Impedance (Ohms) | 50 | 50 | 50 |
| Grounding | N/A | DC | N/A |
| RF connector | Reverse SMA (male) | Reverse SMA (male) | Reverse SMA (male) |
| Weight | 0.5 lb. (0.23 kg) | 0.6 lb. (0.27 kg) | 1.5 lb. (0.68 kg) |
| Mounting style | Mast | Flush wall mount, articulating wall, or mast | Flush wall mount, articulating wall, or mast |
| Front-to-back ratio (dB) | N/A | 15 | 18 |
| Dimensions | N/A | 6.7 x 4.75 x 0.84 in. (17.02 x 12.07 x 2.13 cm) | 3.2 x 23.2 x 2.1 in. (8.13 x 58.93 x 5.33 cm) |
| Height | 25.25 in. (64.14 cm) | N/A | N/A |
| Wind surface area | 0.11 sq. ft. (0.01 sq. m) | N/A | 0.55 sq. ft. (0.05 sq. m) |
| Wind survival | 125 mph (201.13 km/hr) | N/A | 125 mph (201.13 km/hr) |
| Enclosure | Polycarbonate | ASA | Acrylic/PVC |
| Cable length | 2.75 ft. (0.84 m) | 2.75 ft. (0.84 m) | 2.75 ft. (0.84 m) |
| Operating temperature | –22°F to 131°F (–30°C to 55°C ) | –22°F to 131°F (-30°C to 55°C ) | –22°F to 131°F (–30°C to 55°C ) |
| Storage temperature | –40°F to 149°F (–40°C to 65°C ) | –40°F to 149°F (-40°C to 65°C ) | –40°F to 149°F (–40°C to 65°C ) |
| Certified for use on the following ProCurve wireless access points | ProCurve Wireless Access Point 420, ProCurve Wireless Access Point 520wl | ProCurve Wireless Access Point 420 | ProCurve Wireless Access Point 420, ProCurve Wireless Access Point 520wl |
| Regulatory restrictions | Not approved for use in North America | Not approved for use in North America with the ProCurve Wireless Access Point 520wl | Not approved for use in North America |

## Specifications

| | ProCurve MC-Card to R-SMA Cable (J8447A) | ProCurve 14 dBi Yagi Antenna (J8448A) |
|---|---|---|
| Frequency (MHz) | 2400–2500 | 2400–2500 |
| Gain dBi (with antenna cable) | 0.7 (loss) | 13.8 |
| VSWR max | 1.3:1 | 1.7:1 |
| E-Plane (3 dB beamwidth) | | 30 degrees |
| H-Plane (3 dB beamwidth) | | 34 degrees |
| Polarization | | Linear |
| Impedance (Ohms) | 50 | 50 |
| Grounding | | N/A |
| RF connector | Reverse SMA (female) to R/A MC | N-Type (female) |
| Weight | | 1.25 lb. (0.56 kg) |
| Mounting style | | Wall or mast mount |
| Front-to-back ratio (dB) | | 18 |
| Dimensions | | 26.5 x 3.75 x 1.5 in. (67.31 x 9.53 x 3.81 cm) |
| Height | | N/A |
| Wind surface area | | 0.70 sq. ft. (0.07 sq m) |
| Wind survival | | 100 mph (160.9 km/hr) |
| Enclosure | | Polycarbonate |
| Cable length | 1 ft. (0.3 m) | 1.7 ft. (0.52 m) |
| Operating temperature | | –22°F to 131°F (–30°C to 55°C ) |
| Storage temperature | | –40°F to 149°F (–40°C to 65°C ) |
| Certified for use on the following ProCurve wireless access points | ProCurve Wireless Access Point 520wl Not available in North America | ProCurve Wireless Access Point 520wl |
| Regulatory restrictions | Not available in North America | Not approved for use in North America |

# ProCurve Software

# ProCurve Manager and ProCurve Manager Plus 1.6

PCM+ is an advanced Windows-based network management tool that provides administrators with easy-to-use screens for configuring, updating, monitoring, and troubleshooting ProCurve devices. The software can run on its own or with OpenView NNM integration. If NNM integration is selected at installation time, then discovery, topology mapping, and event management will be done by NNM, while configuration, firmware updates, and traffic monitoring will be done by PCM+. This allows administrators to monitor multivendor networks while leveraging ProCurve specific network management functions. PCM+ can also be enhanced with plug-in modules, like Identity Driven Manager, to provide additional mobility, security, and convergence features.



ProCurve Manager



ProCurve Manager Plus 1.6 (J8172B)

# ProCurve Manager and ProCurve Manager Plus 1.6

## Features and benefits

### ProCurve Manager

- **Network status summary:** Upon boot-up, a Network Status screen displays high-level information on network devices, end nodes, events, and traffic levels. From here, the user can research any one of these areas to get more details.

- **Alerts and troubleshooting:** An Events Summary screen displays alerts to the user and categorizes them by severity, making it easier to track where bottlenecks and issues exist in the network. Alerts present detailed information on the problem, even down to the specific port. Users can be alerted to network issues via e-mail or pager.

- **Automatic device discovery:** Customized for fast discovery of all ProCurve manageable network devices. The user can define which IP subnets to discover.

- **Topology and mapping:** Automatically creates a map of discovered network devices. Maps are color-coded to reflect device status and can be viewed at multiple levels (physical view, subnet view, or VLAN view). Connection relationships between devices are drawn to reflect packet traffic lines.

- **Device management:** Many device-focused tasks can be performed directly by the software, or the user can access Web and command-line interfaces with the click of a button to manage individual devices from inside the tool.

### ProCurve Manager Plus 1.6—all of the features of ProCurve Manager, along with:

- **In-depth traffic analysis:** An integrated, low-overhead traffic monitor interface shows detailed information on traffic throughout the network. Using enhanced traffic analysis protocols such as XRMON and sFlow, the user can monitor overall traffic levels, segments with the highest traffic, or even the top users within a network segment.

- **Group and policy management:** The user can create device groups and set group policies for managing those devices. Predetermined configurations can be automatically applied to new devices that have just been added to the network.

- **Easier configuration management:** Changes in configuration are tracked and logged, and archived configurations can be applied to one or many devices. Configurations can be compared over time or between two devices, with the differences highlighted for the user.

- **Advanced VLAN management:** A new, easy-to-use VLAN management interface allows the user to create and assign VLANs across the entire network, without having to access each network device individually.

- **Device software updates:** Automatically obtains new device software images from HP and updates devices, allowing the user to download the latest version or choose the desired version. Updates can be scheduled easily across large groups of devices, all at user-specified times.

- **Investment protection:** The modular software architecture of ProCurve Manager Plus will allow HP to offer network administrators add-on software solutions that complement their needs.

# ProCurve Manager and ProCurve Manager Plus 1.6

## Features and benefits (continued)

### ProCurve Manager Plus 1.6 (continued)

- **OpenView Network Node Manager integration:**

  – **Installation:** The option to integrate with HP OpenView's Network Node Manager (NNM) may be selected at installation. ProCurve Manager Plus 1.6 will then integrate with the 6.41 and 7.x versions of NNM.

  – **Auto-discovery coordinated with OpenView's Network Node Manager:** When integrated with NNM, ProCurve Manager Plus 1.6 will use NNM's discovery database and then retrieve additional ProCurve device data for the ProCurve Manager Plus database.

  – **Topology mapping:** When integrated with NNM, ProCurve Manager Plus will provide ProCurve device icons to the NNM topology map. The NNM topology map will be the primary mapping mechanism with the option to launch the ProCurve Manager map views as well. This allows easy identification of ProCurve devices and allows the user, via right mouse selection, to retrieve a PCM+ map of all selected ProCurve devices.

## Services

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

# ProCurve Manager and ProCurve Manager Plus 1.6

## Specifications

| | ProCurve Manager | ProCurve Manager Plus 1.6 (J8172B) |
|---|---|---|
| **Minimum processor** | 2.0 GHz Intel Pentium® III or equivalent | 2.0 GHz Intel Pentium III or equivalent |
| **Recommended processor** | 3.0 GHz Intel Pentium III or equivalent | 3.0 GHz Intel Pentium III or equivalent |
| **Minimum memory** | 512 MB | 512 MB |
| **Recommended memory** | 1 GB | 1 GB |
| **Minimum disk space** | 500 MB free hard disk space | 500 MB free hard disk space |
| **Operating systems** | MS Windows 2000, MS Windows XP Professional, MS Windows XP, MS Windows 2003 | MS Windows 2000, MS Windows XP Professional, MS Windows XP, MS Windows 2003 |
| **Browsers** | MS Internet Explorer version 5.0 or later | MS Internet Explorer version 5.0 or later |
| **Required/Supported platforms** | ProCurve Manager 1.6 | OpenView Network Node Manager 6.41 or 7.01 or 7.5 (optional) |
| **Supported devices** | ProCurve Switch 2600 series, ProCurve Routing Switch 9300m series, ProCurve Switch 2800 series, ProCurve Switch 2500 series, ProCurve Manager and ProCurve Manager Plus 1.6, ProCurve Switch 4000m and Switch 8000m, ProCurve Switch 5300xl series, ProCurve Wireless Access Point 420, ProCurve Switch 3400cl series, ProCurve Switch 4100gl series, ProCurve Wireless Access Point 520wl, ProCurve Identity Driven Manager 1.0 | |
| **Additional requirements** | | Additional processing power may be necessary for extensive traffic monitoring |

| | ProCurve Manager<br>Basic monitoring<br>and configuration | ProCurve Manager Plus<br>High productivity,<br>monitoring and control | Identity Driven Manager<br>Dynamic policy<br>management |
|---|:---:|:---:|:---:|
| Device auto-discovery | • | • | |
| Topology and mapping | • | • | |
| Intuitive Explorer-style interface | • | • | • |
| Usable troubleshooting data and alerts | • | • | |
| Device configuration and management | • | • | |
| Customize and execute policies across groups | | • | |
| Enhanced network security features | | • | • |
| Multiple device configuration management and archiving | | • | |
| Create and configure VLANs across the network | | • | |
| Traffic monitoring and analysis | | • | |
| Auto-configures traffic monitoring of inter-switch links | NEW | | |
| Software updates with dual flash image support | | • | |
| Modular design for add-in expansion | | • | • |
| E-mail/Pager alerts | | • | |
| SNMP trap forwarding | | • | |
| Granular event data via syslog support | | • | |
| OpenView NNM integration | | NEW | NEW |
| Application of Policies by user identity | | | NEW |
| – Auto VLAN assignment | | | NEW |
| – Auto set Quality of Service by user | | | NEW |
| – Auto set Bandwidth assignment by user | | | NEW |
| Rule-based access rights deployment | | | NEW |
| Dynamic rights assignment based on: | | | NEW |
| – Time | | | NEW |
| – Location | | | NEW |
| – User system | | | NEW |
| Auto-discovery of: | | | NEW |
| – RADIUS servers | | | NEW |
| – Realms | | | NEW |
| – Users | | | NEW |

# NEW ProCurve Identity Driven Manager 1.0

ProCurve IDM 1.0 is an application for ProCurve Manager Plus that dynamically applies security, access, and performance settings to network infrastructure devices based on user, location, and time so that access and rights are granted automatically to approved users—wherever and whenever they connect to the network. Standards-based and easy to use, ProCurve IDM allows administrators to define and manage policies at a central location, so they don't need to configure each network element separately. By automatically managing intelligent network access in this way, ProCurve IDM 1.0 gives customers more control over their networks, more productivity from their IT staff, and more adaptability in an increasingly competitive business environment.
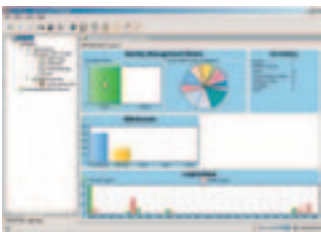


ProCurve Identity Driven Manager
(J8477A)

# ProCurve Identity Driven Manager 1.0

## Features and benefits

- **Works with industry-standard RADIUS protocol:** sets access policies based on RADIUS authentication

- **Automatic VLAN assignment:** automatically assigns users to the appropriate VLAN based on their identity, community, location, and time of day

- **Traffic prioritization:** automatically sets traffic prioritization for the user based on identity, community, location, and time of day

- **Auto-discovery of identity objects:** automatically discovers RADIUS servers with IDM agents, RADIUS realms, and users at login and assigns them to an unconfigured policy group for the administrator's attention

- **Grouping of users into access policy communities:** IDM allows the administrators to group users into access policy communities to apply policies

- **Dynamic rules based on time, location, and user system are formed by administrators and dynamically applied:** access policy communities have rules that are applied to each user in the community based on the time, location, and user system. These dynamic inputs are evaluated and the policies applied according to the user's profile. This results in the appropriate access policies being applied at the right time and place.

- **Rate limits:** automatically applies rate limits to user's traffic based on identity, community, location, and time of day

- **Warranty:** 90-day media warranty, lifetime phone support

## Services

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Specifications

**Minimum processor**
2.0 GHz Intel Pentium III or
   equivalent

**Recommended processor**
3.0 GHz Intel Pentium III or
   equivalent

**Minimum memory**
512 MB RAM

**Recommended memory**
1 GB RAM

**Minimum disk space**
5 GB free hard disk space

**Recommended disk space**
10 GB free hard disk space

**Operating systems**
MS Windows 2000
MS Windows XP Professional
MS Windows XP
MS Windows 2003

**Required/Supported platforms**
ProCurve Manager Plus 1.6

**Features**
Intuitive Explorer-style interface
Device configuration and
   management
Enhanced network security features
Modular design for add-in
   expansion

**Additional requirements**
Large numbers of users may
   require more disk space. IDM
   requires Microsoft IAS running on
   Windows 2003 in this release.

**Supported devices**
ProCurve Switch 2500 series
ProCurve Switch 2600 series
ProCurve Switch 2800 series
ProCurve Switch 3400cl series
ProCurve Switch 4100gl series
ProCurve Switch 5300xl series
ProCurve Switch 6108
ProCurve Wireless Access Point
   420 series

# ProCurve Access Control Client Software

Access Control clients are a critical element of the ProCurve
Access Control Security solution. They provide a comprehensive
solution to the network access control problem in a multi-platform
environment. The ProCurve Access Control Security solution
provides wide support to most customer authentication needs
with support for operating environments including Microsoft
Windows 98, Windows 2000, and Windows XP; Red Hat Linux®;
and Apple Mac OS. In addition, the back-end interoperability with
leading RADIUS authentication vendors completes an industry-
leading ProCurve Access Control Security solution.
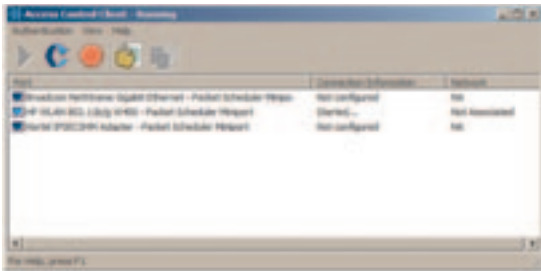


ProCurve Access Control Client Software 25 (J8449A)
ProCurve Access Control Client Software 500 (J8469A)
ProCurve Access Control Client Software 5000 (J8470A)
ProCurve Access Control Client Software 25000 (J8468A)

# ProCurve Access Control Client Software

## Features and benefits

- **Ease of deployment:** single source for all elements of the ProCurve Access Control Security solution, with multi-platform support for 802.1X supplicants and an auto-install utility to simplify deployment

- **Single source for all elements:** supplicants for multiple operating systems, wide switch support from stackables to chassis, and interoperability with multivendor back-end RADIUS authentication server

- **Single sign-on:** Windows 2000, 2003, and XP versions support Windows logon, removing the need to enter a separate password to authenticate the user to the network

## Services

Check **www.hp.com/go/procurveservices** for part numbers and service-level descriptions. For details about services and response times in your area, please contact your local HP sales office.

## Specifications

**Operating systems**
MS Windows NT®, MS Windows 98, MS Windows 2000, MS Windows XP Professional, MS Windows XP, MS Windows 2003, Apple Mac OS 10.2, Red Hat Linux 9.x

**EAP protocols**
- EAP-MD5
- EAP-TLS
- EAP-TTLS
- EAP-PEAP

**WPA support**
- WPA/802.1X and WPA/pre-shared key modes
- Advanced Encryption Standard (AES)

**RADIUS Server support**
- Microsoft IAS
- Funk Steelbelted RADIUS Server
- Free RADIUS

# ProCurve Services
# and Support

# Service and support solutions

### Designed into ProCurve products

You receive HP's legendary commitment to quality and reliability when you purchase ProCurve products. Coupled with intuitive design and ease of use, the following features can be found throughout the ProCurve product line:

• Free ProCurve Manager software shipped with every managed product

• LED displays for at-a-glance monitoring and troubleshooting

• Extensive installation information shipped with the product to get you up and running quickly

### Free network design service

Our comprehensive network design services will generate drawings, including detailed explanations, as well as recommendations based upon your business or project requirements. These designs can address current and future traffic levels, security needs, budget constraints, and the ability to interface with legacy equipment.

# Service and support solutions

### Free electronic support via the Web
Comprehensive documentation such as product information, technical papers, release notes, and FAQs can be found on the ProCurve Networking Web site **(www.hp.com/go/procurve)**. This information is updated frequently and is available on demand, every day, at any time.

ProCurve Networking customers also receive the following:

• Free software updates

• Proactive notification of new software releases via e-mail

• Free technical product support via e-mail

### Worldwide telephone assistance
Free telephone support by highly trained service technicians at our ProCurve Customer Care Centers worldwide is available during normal business hours to assist with ProCurve product questions.

### Industry-leading warranty
ProCurve Networking products come with warranties you would expect from HP.

• Free lifetime warranty* for as long as you own the product with next-business-day advance replacement (available in most countries)

• Warranty covers the entire product, including fans, power supplies, and accessories

• Genuine ProCurve parts for both in- and out-of-warranty repair needs

### Fee-based services
Depending on your needs, ProCurve provides a broad range of onsite and offsite services for ProCurve products, including:

• **Hardware support**
  – 4-hour onsite
  – 4-hour onsite 24x7
  – 6-hour call to repair

• **Premium (hardware and software)**
  – Support Plus 24
  – Proactive 24

• **Deployment services**
  – Installation
  – Installation and startup

• **Post-warranty services**

### Reseller services
To join Service Advantage, or just to learn more about your possibilities for growth with the world's fastest-growing networking vendor, please contact your local HP sales representative and request an NDA copy of the Service Advantage program guide. It includes all terms, conditions, eligibility requirements, and benefits of the Service Advantage program.

For more information on ProCurve Services, visit **www.hp.com/go/procurveservices**.

* The ProCurve Routing Switch 9300m series and ProCurve Secure Access 700wl series have a 1-year warranty with extensions available.

# Contact information

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01-800-472-66-84

Perú: +51 0-800-50-500

Puerto Rico: 1-877-207-0934

Venezuela: +58 0-800-47-888

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United States: (970) 635-1000

**For more information**

To learn more about ProCurve
Networking, please visit
**www.hp.com/go/procurve**

**ProCurve Networking**
HP Innovation