

## ProCurve Switch 2900 Series

The ProCurve Switch 2900 series consists of two switches: the ProCurve Switch 2900-24G with 24 10/100/1000 ports and the ProCurve Switch 2900-48G with 48 10/100/1000 ports. Both have 4 dual-personality ports for 10/100/1000 or mini-GBIC connectivity. In addition, by including four integrated 10-Gigabit Ethernet ports (two CX4 and two X2), the 2900 series offers the most flexible and easy-to-deploy stacking and uplinks in its class. Together with static routing, robust security and management features, free lifetime warranty, and free software updates, the 2900 series is a cost-effective, future-proof solution for customers who are building high-performance networks.



ProCurve Switch 2900-24G  
(J9049A)



ProCurve Switch 2900-48G  
(J9050A)

# ProCurve Switch 2900 Series

## Features and benefits

### Management

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

### Connectivity

#### NEW IPv6:

- **IPv6 Host:** the switches can be managed and deployed at the edge of IPv6 networks

- **Dual Stack (IPv4/IPv6):** provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
- **MLD Snooping:** forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network

- **Plug-n-Play 10-Gbps Ethernet for stacking and uplink:** four integrated 10-GbE ports (two CX4 and two X2) built-in on the switch

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

- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the ProCurve 2500 series, 2510 series, 2600 series, 2800 series, 2810 series, 2900 series, 3400cl series, 3500yl series, 4200vl series, 6108, 6200yl-24G-mGBIC, and 6400cl series

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

### Performance

- **High-performance architecture:** 115 Gbps switching fabric with up to 74 million pps (Switch 2900-24G) and 173 Gbps switching fabric with up to 110 million pps (Switch 2900-48G)
- **Selectable queue configurations:** increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

### Resiliency and high availability

- **IEEE 802.3ad Link Aggregation Protocol (LACP) and ProCurve trunking:** support up to 24 trunks, each with up to 8 links (ports) per trunk
- **IEEE 802.1s Multiple Spanning Tree:** provides high link availability in multiple VLAN

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environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w

## Layer 2 switching

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

- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs

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

## Layer 3 routing

- **Static IP routing:** provides manually configured routing

- **RIP:** provides RIPv1 and RIPv2 routing at media speed

## Security

**NEW USB Secure Autorun (requires ProCurve Manager Plus):** deploys, diagnoses, and updates switch using USB flash drive; works with secure credential to prevent tampering

- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator

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

- **Multiple user authentication methods:**

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

- **Web-based authentication:** authenticates from Web browser for clients that do not support 802.1X supplicant; customized remediation can

be processed on an external Web server

- **MAC-based authentication:** client is authenticated with the RADIUS server based on client's MAC address

- **Authentication flexibility:**

- **Multiple IEEE 802.1X users per port:** provides authentication of up to 8 IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication

- **Concurrent IEEE 802.1X and Web or MAC authentication schemes per port:** switch port will accept any of IEEE 802.1X and either Web or MAC authentications

- **BPDU port protection:** blocks Bridge Protocol Data Units (BPDU) on ports that do not require BPDUs, preventing forged BPDU attacks

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

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

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

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

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

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

- **Custom banner:** displays security policy when users log in to the switch

## Convergence

- **IP multicast snooping (data-driven IGMP):** automatically prevents flooding of IP multicast

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traffic

- **LLDP-MED (Media Endpoint Discovery):** a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

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

## Quality of Service (QoS)

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

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

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

## Industry-leading warranty

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

## Services

### ProCurve Switch 2900-24G

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

### ProCurve Switch 2900-48G

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

# ProCurve Switch 2900 Series



**ProCurve Switch 2900-24G (J9049A)**

**ProCurve Switch 2900-48G (J9050A)**

## Specifications

### Ports

20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only

2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only

2 open 10-GbE X2 transceiver slots

1 RS-232C DB-9 console port

4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)

44 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only

2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only

2 open 10-GbE X2 transceiver slots

1 RS-232C DB-9 console port

4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)

### Physical characteristics

Dimensions 15.43(d) x 17.44(w) x 1.73(h) in. (39.2 x 44.3 x 4.4 cm) (1U height)

Weight 14.11 lb. (6.3 kg)

Dimensions 16.93(d) x 17.44(w) x 1.73(h) in. (43.0 x 44.3 x 4.4 cm) (1U height)

Weight 15.43 lb. (7 kg)

### Memory and processor

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

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

### Mounting

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

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

### Performance

1000 Mb Latency < 3.7  $\mu$ s (FIFO 64-byte packets)

10 Gbps Latency < 2.1  $\mu$ s (FIFO 64-byte packets)

Throughput up to 74 million pps (64-byte packets)

Routing/Switching capacity 101 Gbps

Switching capacity 115 Gbps

Routing table size 2000 entries

MAC address table size 64000 entries

1000 Mb Latency < 3.7  $\mu$ s (FIFO 64-byte packets)

10 Gbps Latency < 2.1  $\mu$ s (FIFO 64-byte packets)

Throughput up to 110 million pps

Routing/Switching capacity 148 Gbps

Switching capacity 173 Gbps

Routing table size 2000 entries

MAC address table size 64000 entries

### Environment

Operating temperature 32°F to 131°F (0°C to 55°C); 32°F to 104°F (0° to 40°C) when using any X2 optic or transceiver

Operating relative humidity 15% to 95% @ 104°F (40°C), non-condensing

Non-operating/Storage temperature -40°F to 158°F (-40°C to 70°C)

Non-operating/Storage relative humidity 15% to 90% @ 149°F (65°C), non-condensing

Altitude up to 15000 ft. (4.6 km)

Acoustic Power: 49.3 dB; DIN 45635T.19 per ISO 7779

Operating temperature 32°F to 131°F (0°C to 55°C); 32°F to 104°F (0° to 40°C) when using any X2 optic or transceiver

Operating relative humidity 15% to 95% @ 104°F (40°C), non-condensing

Non-operating/Storage temperature -40°F to 158°F (-40°C to 70°C)

Non-operating/Storage relative humidity 15% to 90% @ 149°F (65°C), non-condensing

Altitude up to 15000 ft. (4.6 km)

Acoustic Power: 52 dB; DIN 45635T.19 per ISO 7779

# ProCurve Switch 2900 Series

## Electrical characteristics

Description	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz	The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz
Maximum heat dissipation	683 BTU/hr (721 kJ/hr)	683 BTU/hr (721 kJ/hr)
Voltage	100-127 / 200-240 VAC	100-127 / 200-240 VAC
Current	4.0 / 2.0 A	4.0 / 2.0 A
Power consumption	200 W	200 W
Frequency	50 / 60 Hz	50 / 60 Hz

## Safety

CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
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## Emissions

FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
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## Immunity

EN	EN 55024, CISPR 24	EN 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; 3 V/m	IEC 61000-4-3; 3 V/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; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	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 Plus; ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	ProCurve Manager Plus; ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
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## Notes

One 0.5 m 10-GbE CX4 cable is included. When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. ProCurve 10-GbE CX4 Media Converter (J8439A) can be used only with the two fixed CX4 ports.	One 0.5 m 10-GbE CX4 cable is included. When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required. ProCurve 10-GbE CX4 Media Converter (J8439A) can be used only with the two fixed CX4 ports.
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# ProCurve Switch 2900 Series

## Standards and Protocols

### Device Management

RFC 1591 DNS (client)  
HTML and telnet management

### General Protocols

IEEE 802.1D MAC Bridges  
IEEE 802.1p Priority  
IEEE 802.1Q VLANs  
IEEE 802.1s Multiple Spanning Trees  
IEEE 802.1v VLAN classification by Protocol and Port  
IEEE 802.1w Rapid Reconfiguration of Spanning Tree  
IEEE 802.3ad Link Aggregation Control Protocol (LACP)  
IEEE 802.3x Flow Control  
RFC 768 UDP  
RFC 783 TFTP Protocol (revision 2)  
RFC 792 ICMP  
RFC 793 TCP  
RFC 826 ARP  
RFC 854 TELNET  
RFC 868 Time Protocol  
RFC 951 BOOTP  
RFC 1058 RIPv1  
RFC 1350 TFTP Protocol (revision 2)  
RFC 2030 Simple Network Time Protocol (SNTP) v4  
RFC 2131 DHCP  
RFC 2453 RIPv2  
RFC 3046 DHCP Relay Agent Information Option

### IP Multicast

RFC 3376 IGMPv3

### IPv6

RFC 1981 IPv6 Path MTU Discovery  
RFC 2460 IPv6 Specification  
RFC 2461 IPv6 Neighbor Discovery  
RFC 2462 IPv6 Stateless Address Auto-configuration  
RFC 2463 ICMPv6  
RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
RFC 2925 Remote Operations MIB (Ping only)  
RFC 3019 MLDv1 MIB  
RFC 3315 DHCPv6 (client only)  
RFC 3513 IPv6 Addressing Architecture  
RFC 3596 DNS Extension for IPv6  
RFC 3810 MLDv2 (host joins only)  
RFC 4022 MIB for TCP  
RFC 4113 MIB for UDP  
RFC 4251 SSHv6 Architecture  
RFC 4252 SSHv6 Authentication  
RFC 4253 SSHv6 Transport Layer  
RFC 4254 SSHv6 Connection  
RFC 4293 MIB for IP  
RFC 4419 Key Exchange for SSH  
RFC 4541 IGMP & MLD Snooping Switch

### MIBs

RFC 1213 MIB II  
RFC 1493 Bridge MIB  
RFC 1724 RIPv2 MIB  
RFC 2021 RMONv2 MIB  
RFC 2613 SMON MIB  
RFC 2618 RADIUS Client MIB

RFC 2620 RADIUS Accounting MIB  
RFC 2665 Ethernet-Like-MIB  
RFC 2668 802.3 MAU MIB  
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB  
RFC 2737 Entity MIB (Version 2)  
RFC 2863 The Interfaces Group MIB

### Network Management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)  
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)  
RFC 3176 sFlow  
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)  
SNMPv1/v2c/v3  
XRMON

### QoS/Cos

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

### Security

IEEE 802.1X Port Based Network Access Control  
RFC 1492 TACACS+  
RFC 2138 RADIUS Authentication  
RFC 2866 RADIUS Accounting  
Secure Sockets Layer (SSL)  
SSHv1/SSHv2 Secure Shell

# ProCurve Switch 2900 Series

## Accessories

### ProCurve 620 Redundant/External Power Supply (J8696A)

Provides redundant system power and/or extra PoE power for up to two switches simultaneously

#### Ports

2 redundant power supply ports  
Restrictions: 195 W available per port  
2 external power supply ports  
Restrictions: 398 W available per port

#### Physical characteristics

Dimensions: 15.4(d) x 17.4(w) x 1.73(h)  
in. (39.12 x 44.2 x 4.39 cm) (1U height)  
Weight: 15.2 lb. (6.89 kg)

#### Mounting

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

#### Environment

Operating temperature: 32°F to 131°F (0°C to 55°C)  
Operating relative humidity: 15% to 95% @ 104°F (40°C), non-condensing  
Non-operating/Storage temperature: -40°F to 158°F (-40°C to 70°C)  
Non-operating/Storage relative humidity: 15% to 90% @ 149°F (65°C), non-condensing  
Altitude: up to 10000 ft. (3 km)  
Acoustic: LwA per ISO 7779: 54.2 dB

#### Electrical characteristics

Maximum heat dissipation: 400 BTU/hr (422 kJ/hr), for the actual 620 itself.  
PoE-powered device heat dissipation assumed to be outside the 620.  
Voltage: 100-127 / 200-240 VAC  
Current: 16 / 8 A  
Power consumption: 1440 W  
RPS power: 390 W  
PoE power: 796 W  
RPS: 12 V  
PoE: -50 V  
Frequency: 50 / 60 Hz  
Notes: Above figures are for maximum RPS and PoE power being supplied to 2 switches simultaneously. 200 - 240 V power cords shipped with the 620 have a

wall plug rated as close to 13 A as specific country standards allow.

#### Safety

CSA 22.2 No. 60950  
EN 60950/IEC 60950  
UL 60950

#### Emissions

FCC Class A  
VCCI Class A  
EN 55022/CISPR 22 Class A

#### Immunity

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

#### Management

Unmanaged power supply; provides information via LEDs (LEDs repeated on front and back panel) or through port interfaces of attached devices

#### Notes

The ProCurve 620 supports the ProCurve 2900 series (RPS), 3500yl series (RPS/PoE), and 6200yl (RPS) switches. The ProCurve 5400zl switches are not supported.

The ProCurve 620 includes 4 2-meter RPS/EPS cables. These cables can be used to carry either RPS or PoE power to the switch being powered.



### ProCurve Gigabit-LH-LC Mini-GBIC (J4860C)

A small form factor pluggable (SFP) Gigabit LH transceiver that provides a full-duplex Gigabit solution up to 70 km on singlemode fiber.

#### Ports

1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)  
Duplex: full only

#### Physical characteristics

Dimensions: 2.17(d) x 0.60(w) x 0.46(h)  
in. (5.5 x 1.53 x 1.18 cm)  
Weight: 0.04 lb. (0.02 kg)

#### Cabling

#### Type:

- Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

#### Maximum distance:

- 70 km

# ProCurve Switch 2900 Series



**ProCurve Gigabit-LX-LC Mini-GBIC (J4859C)**  
A small form factor pluggable (SFP) Gigabit LX transceiver that provides a full-duplex Gigabit solution up to 10 km (singlemode) or 550 m (multimode).

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

**Physical characteristics**  
Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm)  
Weight: 0.04 lb. (0.02 kg)

**Cabling**  
Type:  
• Either single mode or multimode  
• 62.5/125  $\mu$ m or 50/125  $\mu$ m (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  
• 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 Gigabit-SX-LC Mini-GBIC (J4858C)**  
A small form factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550 m on multimode fiber.

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

**Physical characteristics**  
Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm)  
Weight: 0.04 lb. (0.02 kg)

**Cabling**  
Type:  
• 62.5/125  $\mu$ m or 50/125  $\mu$ m (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  $\mu$ m core diameter, 160 MHz/km bandwidth)  
• 275 m (62.5  $\mu$ m core diameter, 200 MHz/km bandwidth)  
• 500 m (50  $\mu$ m core diameter, 400 MHz/km bandwidth)  
• 550 m (50  $\mu$ m core diameter, 500 MHz/km bandwidth)



**NEW ProCurve 100-FX SFP-LC Transceiver (J9054B)**  
A small form-factor pluggable (SFP) 100Base-FX transceiver that provides 100 Mbps full-duplex connectivity up to 2 km on multimode fiber.

**Ports**  
1 LC 100Base-FX port (IEEE 802.3u Type 100Base-FX)  
Duplex: half or full

**Physical characteristics**  
Dimensions: 2.7(d) x 0.54(w) x 0.48(h) in. (6.86 x 1.38 x 1.22 cm)  
Weight: 0.06 lb. (0.03 kg)

**Environment**  
Operating temperature: 32°F to 158°F (0°C to 70°C)  
Operating relative humidity: 5% to 95%  
Non-operating/Storage temperature: -40°F to 185°F (-40°C to 85°C)  
Non-operating/Storage relative humidity: 5% to 85%  
Altitude: up to 10000 ft. (3 km)

**Cabling**

Type:  
• 62.5/125  $\mu$ m or 50/125  $\mu$ m (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:  
• 2 km (full duplex) or 412 m (half duplex)

**Notes**  
See the document titled "Support for the J9054B 100-FX SFP-LC Transceiver", on the "ProCurve Mini-GBICs and SFPs" Manuals Web page, for supported platforms and minimum software requirements to support this product.

# ProCurve Switch 2900 Series



## ProCurve 10-GbE X2-CX4 Transceiver (J8440B)

An X2 form-factor transceiver with a CX4 connector that provides 10-Gigabit connectivity up to 15 meters over CX4 (copper) cable.

### Ports

1 CX4 transceiver port

### Physical characteristics

Dimensions: 3.54(d) x 1.42(w) x 0.53(h) 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)  
Operating relative humidity: 15% to 95% @ 149°F (65°C), non-condensing

### Cabling

Maximum distance:

- 15 m using CX4 cables
- 300 m using

optical media converters and multimode fiber cable

### Notes

Connector: CX4; Duplex: full

Use CX4 10-GbE cable (0.5-15 m) or ProCurve 10-GbE CX4 Media Converter (J8439A).

For suggested vendors of CX4 cables, please see the "Cabling" answers on the "ProCurve 10-GbE Transceivers" FAQs Web page.

## ProCurve 10-GbE CX4 Media Converter (J8439A)

An optical media converter that connects to CX4 ports, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.

### Physical characteristics

Dimensions: 2.83(d) x 0.98(w) x 0.59(h) in. (7.19 x 2.49 x 1.5 cm)  
Weight: .06 lb. (0.03 kg)

### Cabling

Maximum distance:

- 62.5  $\mu$ m multimode cable @ 150 MHz\*km = 1-50 meters
- 50  $\mu$ m multimode cable @ 500 MHz\*km = 1-100 meters
- 50  $\mu$ m multimode cable @ 2000 MHz\*km = 1-300 meters

### Notes

Duplex: full

Cabling type: 12 fiber 62.5/125  $\mu$ m (core/cladding) diameter or 12 fiber 50/125  $\mu$ m diameter, multimode ribbon cable with MPO/MTP to MPO/MTP connectors



## ProCurve 10-GbE X2-SC ER Optic (J8438A)

An X2 form-factor transceiver that supports the 10-Gigabit ER standard, providing 10-Gigabit connectivity up to 30 km on singlemode fiber (40 km on engineered links).

### Ports

1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-ER)  
Duplex: full only

### Physical characteristics

Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)  
Weight: 0.15 lb. (0.07 kg)

### Environment

Operating temperature: 32°F to 104°F (0°C to 40°C)  
Operating relative humidity: 15% to 95%, non-condensing

### Cabling

Type:

- Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

Maximum distance:

- 30 km (40 km on engineered links)

### Notes

1550 nm serial optics

Conditioning patch cord cables are not supported.

# ProCurve Switch 2900 Series



**ProCurve 10-GbE X2-SC LR Optic (J8437A)**  
An X2 form-factor transceiver that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on singlemode fiber.

### Ports

1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR)  
Duplex: full only

### Physical characteristics

Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)  
Weight: 0.16 lb. (0.07 kg)

### Environment

Operating temperature: 32°F to 104°F (0°C to 40°C)  
Operating relative humidity: 15% to 95%, non-condensing

### Cabling

### Type:

• Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

### Maximum distance:

• 9/125  $\mu\text{m}$  single-mode cable = 2 m-10 km

### Notes

1310 nm serial optics

Conditioning patch cord cables are not supported.



**ProCurve 10-GbE X2-SC SR Optic (J8436A)**  
An X2 form-factor transceiver that supports the 10-Gigabit SR standard, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.

### Ports

1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR)  
Duplex: full only

### Physical characteristics

Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)  
Weight: 0.64 lb. (0.29 kg)

### Environment

Operating temperature: 32°F to 104°F (0°C to 40°C)  
Operating relative humidity: 15% to 95%, non-condensing

### Cabling

#### Type:

• 62.5/125  $\mu\text{m}$  or 50/125  $\mu\text{m}$  (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:

• 62.5  $\mu\text{m}$  multimode cable @ 160 MHz\*km = 2-26 meters  
• 62.5  $\mu\text{m}$  multimode cable @ 200 MHz\*km = 2-33 meters  
• 50  $\mu\text{m}$  multimode cable @ 400 MHz\*km = 2-66 meters  
• 50  $\mu\text{m}$  multimode cable @ 500 MHz\*km = 2-82 meters  
• 50  $\mu\text{m}$  multimode cable @ 2000 MHz\*km = 2-300 meters

### Notes

850 nm serial optics

**ProCurve Manager Plus 2.3 unlimited-device license (J9059A)**

PCM+ 2.3 unlimited license provides a PCM+ license that does not limit the number of devices managed (it does NOT require the 50-device license).

**System requirements**

For networks having 50 to 250 managed devices, ProCurve recommends the following:

**Minimum system hardware**

2.0 GHz Intel Pentium 4 or equivalent processor  
2 GB RAM memory  
10 GB storage  
1000 MB NIC

for PCM+ as a standalone application, assuming a dedicated server

**Recommended system hardware**

3.0 GHz Intel Pentium 4 or equivalent processor  
3 GB RAM memory  
40 GB storage  
1000 MB NIC

for PCM+ assuming a dedicated server, and including ProCurve Identity Driven Manager, Mobility Manager, and Network Immunity Manager on the same server

**Recommended software**

Microsoft Windows 2003 Server  
Windows XP SP2  
Windows XP Professional SP2

For networks having 250 to 2,000 managed devices, ProCurve recommends the following:

**Minimum system hardware**

3.0 GHz Intel Pentium 4 or equivalent processor  
3 GB RAM memory  
40 GB storage  
1000 MB NIC

for PCM+ as a standalone application, assuming a dedicated server

**Recommended system hardware**

Intel Xeon or equivalent processor

4 GB RAM memory  
80 GB storage  
1000 MB NIC

for PCM+ assuming a dedicated server, and including ProCurve Identity Driven Manager, Mobility Manager, and Network Immunity Manager on the same server

**Recommended software**

Microsoft Windows 2003 Server  
Windows XP SP2  
Windows XP Professional SP2

**Browsers**

Microsoft Internet Explorer version 5.0 or later

**Supported platforms**

HP OpenView Network Node Manager version 6.41 or 7.01 or 7.5

**Additional requirements**

NOTE: ProCurve Network Immunity Manager when loaded on PCM+ 2.3 can sample up to 500 managed ports using sFlow or XRMON.

**Notes**

Additional processing power may be necessary for extensive traffic monitoring.

Unlimited license means that ProCurve does not impose a limit on the number of devices attached to the network as a condition of the license.

Some degradation in performance may be expected the greater the number of devices attached to the network.

Specifications subject to change