

### Overview



ProCurve Switch 6400cl



ProCurve Switch 6410cl

### Models

ProCurve Switch 6400cl  
ProCurve Switch 6410cl

J8433A  
J8474A

### Introduction

The ProCurve Switch 6400cl series consists of 6-port 10-GbE stackables with optional 10-GbE add-on modules. Loaded with full Layer 3 features, the 6400cl series switches offer low-cost 10-GbE for high-performance aggregation of clusters of Gigabit switches. Ideal for consolidating multiple wiring closets, the 6400cl series offers the highest bandwidth on the market today for Gigabit. The ProCurve Switch 6400cl series also provides fiber flexibility to connect remote campuses up to 40 km away.

### Features and Benefits

#### Performance

- **160 Gbps backplane with 119 mpps:** unprecedented bandwidth for low-latency throughput
- **Selectable queuing configurations:** increase performance by selecting the queuing configuration that best meets the requirements of network applications
- **Jumbo frames:** on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services

#### Resiliency and high availability

- **Router redundancy (XRRP):** allows groups of two routers to dynamically back each other up to create highly available routed environments
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and ProCurve trunking:** support up to 4 trunks, each with up to 4 links (ports) per trunk; trunking across modules is supported
- **IEEE 802.1s Multiple Spanning Tree:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees
- **IEEE 802.1w Rapid Convergence Spanning Tree Protocol:** increases network uptime through faster recovery from failed links
- **Optional redundant power supply:** provides uninterrupted power (provided by ProCurve 600 RPS/EPS)

#### Layer 2 switching



### Overview

- **ProCurve switch meshing:** dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth
- **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
- **IEEE 802.1v protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

### Layer 3 routing

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

### Security

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Source-port filtering:** allows only specified ports to communicate with each other
- **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
- **IEEE 802.1X and RADIUS network login:** control port-based access for authentication and accountability
- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **Web-based authentication:** similar to IEEE 802.1X, provides a browser-based environment to authenticate clients that do not support the IEEE 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
- **Secure access to manage the 6400cl series:** all access methods--CLI, GUI, or MIB--are securely encrypted through SSHv2, SSL, and/or SNMPv3

### Convergence

- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic

### Quality of Service (QoS)

- **Rate limiting:** per-port ingress enforced maximums
- **Layer 4 prioritization:** enables prioritization based on TCP/UDP ports
- **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

### Manageability

- **sFlow (RFC 3176):** wire-speed traffic accounting and monitoring
- **RMON and XRMON:** 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 3400cl series

### Industry-leading warranty

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

### Overview

#### Accessories

ProCurve 10-GbE X2-CX4 Transceiver	J8440B
ProCurve 10-GbE CX4 Media Converter	J8439A
ProCurve 10-GbE X2-SC SR Optic	J8436A
ProCurve 10-GbE X2-SC LR Optic	J8437A
ProCurve 10-GbE X2-SC ER Optic	J8438A
ProCurve 600 Redundant External Power Supply	J8168A

#### cl Modules

ProCurve Switch cl 10-GbE Media Flex Module	J8435A
ProCurve Switch cl 10-GbE CX4 Copper Module	J8434A

#### Services

<b>ProCurve Switch 6400cl</b> 3-year, 4-hour onsite, 13x5 coverage for hardware	UA438E
3-year, 4-hour onsite, 24x7 coverage for hardware	UA439E
3-year, 24x7 SW phone support, software updates	UF791E
Installation with minimum configuration, system-based pricing	U4826E
Installation with HP-provided configuration, system-based pricing	U4830E
Installation with HP-provided configuration, system-based pricing	UA440E

<b>ProCurve Switch 6410cl</b> 3-year, 4-hour onsite, 13x5 coverage for hardware	UA438E
3-year, 4-hour onsite, 24x7 coverage for hardware	UA439E
3-year, 24x7 SW phone support, software updates	UF791E
Installation with minimum configuration, system-based pricing	U4826E
Installation with HP-provided configuration, system-based pricing	U4830E
Installation with HP-provided configuration, system-based pricing	UA440E

### Technical Specifications

<b>ProCurve Switch 6400cl (J8433A)</b>	<b>Ports</b>	6 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only 1 RS-232C DB-9 console port Supports a maximum of 8 10-GbE ports
	<b>Cabling</b>	<b>CX4 ports</b> Maximum distance: <ul style="list-style-type: none"> <li>• 0.5 m to 15 m using CX4 cable</li> <li>• Up to 300 m using J8439A media converter using MMF</li> </ul>
<b>Physical characteristics</b>	<b>Dimensions</b>	16.9(d) x 17.4(w) x 1.7(h) in. (42.93 x 44.2 x 4.32 cm) (1U height)
	<b>Weight</b>	12.35 lb. (5.60 kg)
<b>Memory and processor</b>	Motorola PowerPC MPC8245 @ 266 MHz, 16 MB flash, 128 MB SDRAM, 128 MB flash ROM; packet buffer size: 4 MB	
<b>Mounting</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only	
<b>Performance</b>	<b>Latency</b>	<11.7 $\mu$ s (LIFO 64-byte packets)
	<b>Throughput</b>	Up to 119 million pps (64-byte packets)
	<b>Routing/Switching capacity</b>	160 Gbps
	<b>MAC address table size</b>	16,000 entries
<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 104°F (40°C) when used with SR/LR/ER optics
	<b>Operating relative humidity</b>	15% to 95% @ 104°F (40°C), non-condensing
	<b>Non-operating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)
	<b>Non-operating/Storage relative humidity</b>	15% to 95% @ 149°F (65°C), non-condensing
	<b>Altitude</b>	up to 15,000 ft. (4.6 km)
	<b>Acoustic</b>	Power: 55 dB; DIN 45635T.19 per ISO 7779 @ <77°F (25°C)
<b>Electrical characteristics</b>	<b>Maximum heat dissipation</b>	383 BTU/hr (404 kJ/hr), including use of optional cl modules with optics
	<b>Voltage</b>	100-127 / 200-240 VAC
	<b>Current</b>	3 / 1.5 A
	<b>Power consumption</b>	112 W
	<b>Frequency</b>	50 / 60 Hz
<b>Safety Emissions Immunity</b>	CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950 FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A <b>EN</b> EN 55024, CISPR 24 <b>ESD</b> IEC 61000-4-2; 4 kV CD, 8 kV AD <b>Radiated</b> IEC 61000-4-3; 3 V/m <b>EFT/Burst</b> IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line) <b>Surge</b> IEC 61000-4-5; 1 kV/2 kV AC <b>Conducted</b> IEC 61000-4-6; 3 V <b>Power frequency magnetic field</b> IEC 61000-4-8; 1 A/m, 50 or 60 Hz	

### Technical Specifications

	<b>Voltage dips and interruptions</b>	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	<b>Harmonics</b>	EN 61000-3-2, IEC 61000-3-2
	<b>Flicker</b>	EN 61000-3-3, IEC 61000-3-3
<b>Management</b>		ProCurve Manager Plus; ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
<b>Standards and protocols</b>	<b>Device Management</b>	HTML and telnet management
	<b>General Protocols</b>	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 802.3ae 10-Gigabit Ethernet IEEE 802.3ak 10GBASE-CX4 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 951 BOOTP RFC 1058 RIPv1 RFC 1542 BOOTP Extensions RFC 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2453 RIPv2 RFC 3046 DHCP Relay Agent Information Option
	<b>IP Multicast</b>	RFC 3376 IGMPv3
	<b>MIBs</b>	RFC 1213 MIB II RFC 1493 Bridge MIB RFC 1724 RIPv2 MIB RFC 1850 OSPFv2 MIB RFC 2096 IP Forwarding Table 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 2863 The Interfaces Group MIB
	<b>Network Management</b>	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) RFC 3164 BSD syslog Protocol RFC 3176 sFlow

### Technical Specifications

	SNMPv1/v2c/v3
	XRMON
<b>OSPF</b>	RFC 2328 OSPFv2
<b>QoS/Cos</b>	RFC 2474 DiffServ Precedence, including 8 queues/port RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF)
<b>Security</b>	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 6410cl (J8474A)

<b>Ports</b>	1 RS-232C DB-9 console port Supports a maximum of 8 10-GbE ports 6 open 10-GbE X2 transceiver slots
<b>Cabling</b>	X2 transceiver slots ProCurve 10-GbE X2-SC LR Optic  Maximum distance: <ul style="list-style-type: none"> <li>9/125 <math>\mu</math>m single-mode cable = 2-10 km ProCurve 10-GbE X2-SC SR Optic</li> </ul> Maximum distance: <ul style="list-style-type: none"> <li>62.5 <math>\mu</math>m multimode cable @ 160 MHz/km = 2-26 meters</li> <li>62.5 <math>\mu</math>m multimode cable @ 200 MHz/km = 2-33 meters</li> <li>50 <math>\mu</math>m multimode cable @ 400 MHz/km = 2-66 meters</li> <li>50 <math>\mu</math>m multimode cable @ 500 MHz/km = 2-82 meters</li> <li>50 <math>\mu</math>m multimode cable @ 2000 MHz/km = 2-300 meters</li> </ul> ProCurve 10-GbE X2-SC ER Optic  Maximum distance: <ul style="list-style-type: none"> <li>30 km (40 km using engineered link)</li> </ul> ProCurve 10-GbE X2-CX4 Transceiver  Maximum distance: <ul style="list-style-type: none"> <li>0.5 m to 15 m using CX4 cable</li> <li>Up to 300 m using J8439A media converter using MMF</li> </ul>
<b>Physical characteristics</b>	<b>Dimensions</b> 16.9(d) x 17.4(w) x 1.7(h) in. (42.93 x 44.2 x 4.32 cm) (1U height) <b>Weight</b> 13.56 lb. (6.15 kg)
<b>Memory and processor</b>	Motorola PowerPC MPC8245 @ 266 MHz, 16 MB flash, 128 MB SDRAM, 128 MB flash ROM; packet buffer size: 4 MB
<b>Mounting</b>	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only

### Technical Specifications

<b>Performance</b>	<b>Latency</b>	<11.7 $\mu$ s (LIFO 64-byte packets)	
	<b>Throughput</b>	Up to 119 million pps (64-byte packets)	
	<b>Routing/Switching capacity</b>	160 Gbps	
	<b>MAC address table size</b>	16,000 entries	
	<b>Environment</b>	<b>Operating temperature</b>	32°F to 131°F (0°C to 55°C); 104°F (40°C) when used with SR/LR/ER optics
<b>Operating relative humidity</b>		15% to 95% @ 104°F (40°C), non-condensing	
<b>Non-operating/Storage temperature</b>		-40°F to 158°F (-40°C to 70°C)	
<b>Non-operating/Storage relative humidity</b>		15% to 95% @ 149°F (65°C), non-condensing	
<b>Altitude</b>		up to 15,000 ft. (4.6 km)	
<b>Acoustic</b>		55 dB; DIN 45635T.19 per ISO 7779 @ <77°F (25°C)	
<b>Electrical characteristics</b>		<b>Maximum heat dissipation</b>	383 BTU/hr (404 kJ/hr), including use of optional cl modules with optics
	<b>Voltage</b>	100-127 / 200-240 VAC	
	<b>Current</b>	3 / 1.5 A	
	<b>Power consumption</b>	120 W	
	<b>Frequency</b>	50 / 60 Hz	
	<b>Safety Emissions Immunity</b>		CSA 22.2 No. 60950; EN 60950/IEC 60950; UL 60950
		FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
		EN 55024, CISPR 24	
		IEC 61000-4-2; 4 kV CD, 8 kV AD	
		IEC 61000-4-3; 3 V/m	
		IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	
		IEC 61000-4-5; 1 kV/2 kV AC	
		IEC 61000-4-6; 3 V	
		IEC 61000-4-8; 1 A/m, 50 or 60 Hz	
		IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	
		EN 61000-3-2, IEC 61000-3-2	
		EN 61000-3-3, IEC 61000-3-3	
<b>Management</b>		ProCurve Manager Plus; ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	
<b>Standards and protocols</b>		<b>Device Management</b>	HTML and telnet management
	<b>General Protocols</b>	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 802.3ae 10-Gigabit Ethernet
	IEEE 802.3ak 10GBASE-CX4
	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 951 BOOTP
	RFC 1058 RIPv1
	RFC 1542 BOOTP Extensions
	RFC 2030 Simple Network Time Protocol (SNTP) v4
	RFC 2131 DHCP
	RFC 2453 RIPv2
	RFC 3046 DHCP Relay Agent Information Option
<b>IP Multicast</b>	RFC 3376 IGMPv3
<b>MIBs</b>	RFC 1213 MIB II
	RFC 1493 Bridge MIB
	RFC 1724 RIPv2 MIB
	RFC 1850 OSPFv2 MIB
	RFC 2096 IP Forwarding Table 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 2863 The Interfaces Group MIB
<b>Network Management</b>	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
	RFC 3164 BSD syslog Protocol
	RFC 3176 sFlow
	SNMPv1/v2c/v3
	XRMON
<b>OSPF</b>	RFC 2328 OSPFv2
<b>QoS/Cos</b>	RFC 2474 DiffServ Precedence, including 8 queues/port
	RFC 2597 DiffServ Assured Forwarding (AF)
	RFC 2598 DiffServ Expedited Forwarding (EF)
<b>Security</b>	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

### Accessories

<p><b>ProCurve 10-GbE X2-CX4 Transceiver (J8440B)</b></p> <p>An X2 form-factor transceiver with a CX4 connector that provides 10-Gigabit connectivity up to 15 meters over CX4 (copper) cable.</p>	<p><b>Ports</b></p> <p><b>Physical characteristics</b></p> <p><b>Environment</b></p> <p><b>Cabling</b></p> <p><b>Notes</b></p>	<p>1 CX4 transceiver port</p> <p>Dimensions: 3.54(d) x 1.42(w) x 0.53(h) in. (8.99 x 3.61 x 1.35 cm)</p> <p>Weight: 0.18 lb. (0.08 kg)</p> <p>Operating temperature: 32°F to 131°F (0°C to 55°C)</p> <p>Operating relative humidity: 15% to 95% @ 149°F (65°C), non-condensing</p> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>• 15 m using CX4 cables</li> <li>• 300 m using optical media converters and multimode fiber cable</li> </ul> <p>Connector: CX4; Duplex: full</p> <p>Use CX4 10-GbE cable (0.5-15 m) or ProCurve 10-GbE CX4 Media Converter (J8439A).</p> <p>For suggested vendors of CX4 cables, please see the "Cabling" answers on the "ProCurve 10-GbE Transceivers" FAQs Web page.</p>
<p><b>ProCurve 10-GbE CX4 Media Converter (J8439A)</b></p> <p>An optical media converter that connects to CX4 ports, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.</p>	<p><b>Physical characteristics</b></p> <p><b>Cabling</b></p> <p><b>Notes</b></p>	<p>Dimensions: 2.83(d) x 0.98(w) x 0.59(h) in. (7.19 x 2.49 x 1.5 cm)</p> <p>Weight: 0.06 lb. (0.03 kg)</p> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>• 62.5 µm multimode cable @ 150 MHz*km = 1-50 meters</li> <li>• 50 µm multimode cable @ 500 MHz*km = 1-100 meters</li> <li>• 50 µm multimode cable @ 2000 MHz*km = 1-300 meters</li> </ul> <p>Duplex: full</p> <p>Cabling type: 12 fiber 62.5/125 µm (core/cladding) diameter or 12 fiber 50/125 µm diameter, multimode ribbon cable with MPO/MTP to MPO/MTP connectors</p>
<p><b>ProCurve 10-GbE X2-SC SR Optic (J8436A)</b></p> <p>An X2 form-factor transceiver that supports the 10-Gigabit SR standard, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.</p>	<p><b>Ports</b></p> <p><b>Dimensions</b></p> <p><b>Weight</b></p> <p><b>Environment</b></p> <p><b>Cabling</b></p> <p><b>Notes</b></p>	<p>1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR)</p> <p>Duplex: full only</p> <p>3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)</p> <p>0.64 lb. (0.29 kg)</p> <p>Operating temperature: 32°F to 104°F (0°C to 40°C)</p> <p>Operating relative humidity: 15% to 95%, non-condensing</p> <p>Type:</p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>• 62.5 µm multimode cable @ 160 MHz*km = 2-26 meters</li> <li>• 62.5 µm multimode cable @ 200 MHz*km = 2-33 meters</li> <li>• 50 µm multimode cable @ 400 MHz*km = 2-66 meters</li> <li>• 50 µm multimode cable @ 500 MHz*km = 2-82 meters</li> <li>• 50 µm multimode cable @ 2000 MHz*km = 2-300 meters</li> </ul> <p>850 nm serial optics</p>

### Accessories

<p><b>ProCurve 10-GbE X2-SC LR Optic (J8437A)</b></p> <p>An X2 form-factor transceiver that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on singlemode fiber.</p>	<p><b>Ports</b></p> <p>1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR) Duplex: full only</p> <p><b>Dimensions</b></p> <p>3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)</p> <p><b>Weight</b></p> <p>0.16 lb. (0.07 kg)</p> <p><b>Environment</b></p> <p>Operating temperature: 32°F to 104°F (0°C to 40°C) Operating relative humidity: 15% to 95%, non-condensing</p> <p><b>Cabling</b></p> <p>Type:</p> <ul style="list-style-type: none"> <li>● Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1</li> </ul> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>● 9/125 µm single-mode cable = 2 m-10 km</li> </ul>
<p><b>Notes</b></p>	<p>1310 nm serial optics</p> <p>Conditioning patch cord cables are not supported.</p>

<p><b>ProCurve 10-GbE X2-SC ER Optic (J8438A)</b></p> <p>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).</p>	<p><b>Ports</b></p> <p>1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-ER) Duplex: full only</p> <p><b>Dimensions</b></p> <p>3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)</p> <p><b>Weight</b></p> <p>0.15 lb. (0.07 kg)</p> <p><b>Environment</b></p> <p>Operating temperature: 32°F to 104°F (0°C to 40°C) Operating relative humidity: 15% to 95%, non-condensing</p> <p><b>Cabling</b></p> <p>Type:</p> <ul style="list-style-type: none"> <li>● Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1</li> </ul> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>● 30 km (40 km on engineered links)</li> </ul>
<p><b>Notes</b></p>	<p>1550 nm serial optics</p> <p>Conditioning patch cord cables are not supported.</p>

<p><b>ProCurve 600 Redundant External Power Supply (J8168A)</b></p> <p>The ProCurve 600 Redundant and External Power Supply (RPS/EPS) has 6 RPS ports and 2 EPS ports and supplies backup and Power over Ethernet power.</p>	<p><b>Ports</b></p> <p>6 redundant power supply ports Restrictions: Each port can provide redundant +12 V power to a connected switch; only one port can provide power at a given time</p> <p>2 external power supply ports Restrictions: Provides +50 VDC external PoE to up to two switch devices; provides max. of 408 W full power to one device, and half power (204 W each) if connected to two devices</p> <p><b>Physical characteristics</b></p> <p>Dimensions: 12.83(d) x 17.44(w) x 1.73(h) in. (32.59 x 44.3 x 4.39 cm) (1U height) Weight: 11.78 lb. (5.34 kg), Fully loaded</p> <p><b>Mounting</b></p> <p>1U rack-mountable and wall-mountable enclosure using standard mounting hardware</p> <p><b>Environment</b></p> <p>Operating temperature: 32°F to 131°F (0°C to 55°C) Operating relative humidity: 15% to 95% @ 104°F (40°C), non-</p>
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### Accessories

	condensing Non-operating/Storage temperature: -40°F to 158°F (-40°C to 70°C) Non-operating/Storage relative humidity: 15% to 95% @ 149°F (65°C), non-condensing Altitude: up to 15000 ft. (4.6 km) Acoustic: Noise emission LwA=59.2 dB at virtual workspace, according to DIN 45635 T.19
<b>Electrical characteristics</b>	Description: The unit automatically adjusts to any voltage between 100-240 V and either 50 or 60 Hz Voltage: 100-240 VAC Current: 9 / 5 A Power consumption: 800 W RPS power: 180 W PoE power: 408 W Frequency: 50 / 60 Hz
<b>Safety</b>	CSA 22.2 No. 60950 EN 60950/IEC 60950 UL 60950
<b>Emissions</b>	FCC Class A VCCI Class A EN 55022/CISPR 22 Class A
<b>Immunity</b>	EN: EN 55024, CISPR 24 ESD: IEC 61000-4-2; 4 kV CD, 8 kV AD Radiated: IEC 61000-4-3; 3 V/m EFT/Burst: IEC 61000-4-4; 1.0 kV (power line), 0.05 kV (signal line) Surge: IEC 61000-4-5; 1 kV/2 kV AC Conducted: IEC 61000-4-6; 3 V Power frequency magnetic field: IEC 61000-4-8; 1 A/m, 50 or 60 Hz Voltage dips and interruptions: IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods Harmonics: EN 61000-3-2, IEC 61000-3-2 Flicker: EN 61000-3-3, IEC 61000-3-3
<b>Management Notes</b>	Provides information via port interfaces of attached devices Supported devices  ProCurve Switch 2600-PWR series, ProCurve Switch 2800 series, ProCurve Switch 5300xl series, ProCurve Switch 3400cl series, ProCurve Switch 6400cl series, ProCurve Secure Router 7000dl series

### Accessories

#### cl Modules

<p><b>ProCurve Switch cl 10- Ports GbE Media Flex Module (J8435A)</b></p> <p>10-Gigabit module with 2 X2 transceiver slots</p>	<p><b>Physical characteristics</b></p> <p>2 open 10-GbE X2 transceiver slots</p> <p>Dimensions: 6.81(d) x 4.5(w) x 1.6(h) in. (17.3 x 11.43 x 4.06 cm)</p> <p>Weight: 0.64 lb. (0.29 kg)</p> <p><b>Environment</b></p> <p>Operating temperature: 32°F to 131°F (0°C to 55°C); 104°F (40°C) when used with SR/LR/ER optics</p> <p>Operating relative humidity: 15% to 95%, non-condensing</p> <p>Non-operating/Storage temperature: -40°F to 158°F (-40°C to 70°C)</p> <p>Non-operating/Storage relative humidity: 15% to 95% @ 149°F (65°C), non-condensing</p> <p><b>Notes</b></p> <p>Duplex: full</p> <p>Operating temperature is 32°F to 104°F (0°C to 40°C) if any X2 10-GbE optic or transceiver is inserted in any X2 slot.</p>
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<p><b>ProCurve Switch cl 10- Ports GbE CX4 Copper Module (J8434A)</b></p> <p>2-port 10-Gigabit module with fixed CX4 connectors and 0.5 m cable</p>	<p><b>Physical characteristics</b></p> <p>2 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4)</p> <p>Duplex: full only</p> <p>Dimensions: 6.81(d) x 4.5(w) x 1.5(h) in. (17.3 x 11.43 x 3.81 cm)</p> <p>Weight: 0.67 lb. (0.3 kg)</p> <p><b>Environment</b></p> <p>Operating temperature: 32°F to 131°F (0°C to 55°C)</p> <p>Operating relative humidity: 15% to 95%, non-condensing</p> <p>Non-operating/Storage temperature: -40°F to 158°F (-40°C to 70°C)</p> <p>Non-operating/Storage relative humidity: 15% to 95% @ 149°F (65°C), non-condensing</p> <p><b>Cabling</b></p> <p>Maximum distance:</p> <ul style="list-style-type: none"> <li>• 15 m using CX4 cable</li> <li>• 300 m using optical media converters and multimode fiber cable</li> </ul> <p><b>Notes</b></p> <p>Use CX4 10-GbE cable (0.5-15 m) or ProCurve 10-GbE CX4 Media Converter (J8439A).</p> <p>Includes a single 0.5 m cable.</p>
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