

## Highlights

### Key Features

- Scalable family of edge switches centrally powered by ExtremeXOS software
- Edge component of Extreme's Extended Edge Switching solution
- Seamlessly runs advanced services residing on ExtremeXOS aggregation switch
- Centralized, single point of control reduces complexity and operational costs
- Plug and play edge installation - just connect and power-up

### Hardware Summary

- 24 or 48-port Gigabit Ethernet (non-PoE) models
- 24 or 48-port 802.3at PoE models
- 2 or 4-port 10Gbase-X SFP+ uplink ports
- Redundant Power Supply (RPS) option



## ExtremeSwitching™ V400 Series

Simplified edge switch operation leveraging the power of ExtremeXOS® aggregation switches.

### Product Overview

The ExtremeSwitching V400 Series is a scalable cost-effective family of edge switches powered by Extreme Networks ExtremeXOS (EXOS) software, a highly resilient OS providing continuous uptime, advanced services and operational efficiency.

As the edge component of Extreme's Extended Edge Switching solution, the V400 provides access switch capabilities, while being controlled by a remote EXOS aggregation switch. This allows the V400 to seamlessly extend all the feature-rich services of the EXOS aggregation switch, including Layer 3 routing and policy, to the network edge.

### Centralized Management and Control

All V400 models support standards-based control and data plane technology based on the IEEE 802.1BR specification, allowing for centralized management and intelligent service delivery from a central EXOS aggregation switch. The EXOS aggregation switch also acts as a single point of V400 configuration and control for reduced complexity and operational costs (see Figure 1).

### Plug and Play Installation

V400 Series units can be quickly installed in a plug and play manner. Once the unit is physically connected and powered up, the V400 automatically finds the central EXOS aggregation switch and downloads its configuration. There's no need to connect a local console to set-up the V400 unit or its ports.

## Diverse Models with 10GB Uplinks

The V400 family consists of both 24 and 48-port Gigabit Ethernet and 24 and 48-port Gigabit PoE+ models. All models include either 2 or 4 SFP+ ports on the faceplate of each base unit, which can be provisioned either as uplink or cascade ports. This gives administrators the option to create redundant links or downstream cascade ports to other V400 units.

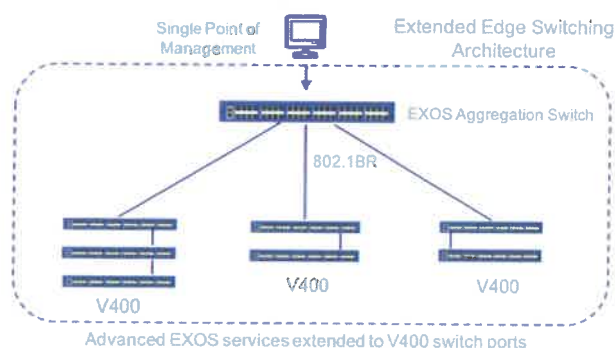


Figure 1: The V400 Series is the edge component of Extreme's Extended Edge Switching solution

## Power over Ethernet Support

V400 Series switches support both IEEE 802.3at PoE+ and IEEE 802.3af PoE to enable connection of standards compliant PoE devices today. The V400 offers up to 740W PoE budget on 48-port models and 380W on 24-port models.

## Optional Redundant Power Supply

V400 PoE models also support an optional external redundant power supply (RPS) with up to 1000W for back-up (or fail-over) power needs.

## EXOS Aggregation Switch Support

The V400 operates in conjunction with ExtremeSwitching X590, X670-G2 and X690 Series switches which act as the "controlling" aggregation switch within the Extended Edge Switching architecture.

## Technical Specifications

### Performance and Scale

Switch Model	Maximum 10/100/1000 Base-T Ports	Maximum Active 1Gb SFP Ports	Maximum Active 10Gb SFP+ Ports	Aggregated Switch Bandwidth	Frame Forwarding Rate
V400-24t-10GE2	24	2	2	40 Gbps	59 Mpps
V400-24p-10GE2	24	2	2	40 Gbps	59 Mpps
V400-48t-10GE4	48	4	4	80 Gbps	119 Mpps
V400-48p-10GE4	48	4	4	80 Gbps	119 Mpps

### CPU/Memory

- 64-bit ARM Processor, 800 MHz clock, dual core
- 256MB ECC DDR3 DRAM
- 128MB Flash
- 1.5MB packet buffer on 24-port switches, 3MB packet buffer on 48-port switches

### LED Indicators

- Per port status LED including power status
- System Status LEDs: fan and system

### External Ports

Switch Hardware	Ports
V400-24t-10GE2	24 x 10/100/1000BASE-T (RJ-45) Half, Full, Auto Duplex   2 x 10GBASE-X SFP+   1 x Serial (console port RJ-45)   USB
V400-24p-10GE2	24 x 10/100/1000BASE-T (RJ-45) PoE-Plus Half, Full, Auto Duplex   2 x 10GBASE-X SFP+   1 x Serial (console port RJ-45)   USB   RPS port
V400-48t-10GE4	48 x 10/100/1000BASE-T (RJ-45) Half, Full, Auto Duplex   4 x 10GBASE-X SFP+   1 x Serial (console port RJ-45) with RTS/CTS modem control   USB
V400-48p-10GE4	48 x 10/100/1000BASE-T (RJ-45) PoE-Plus Half, Full, Auto Duplex   4 x 10GBASE-X SFP+   1 x Serial (console port RJ-45) with RTS/CTS modem control   USB   RPS port

## Physical

Switch Model	Weight	Height	Width	Depth
V400-24t-10GE2	6.62 lb (3.00 kg)	1 RU / 1.70 inches (4.32 cm)	17.34 inches (44.0 cm)	9.97 inches (25.3 cm)
V400-24p-10GE2	9.08 lb (4.12 kg)	1 RU / 1.70 inches (4.32 cm)	17.34 inches (44.0 cm)	9.97 inches (25.3 cm)
V400-48t-10GE4	7.18 lb (3.26 kg)	1 RU / 1.70 inches (4.32 cm)	17.34 inches (44.0 cm)	9.97 inches (25.3 cm)
V400-48p-10GE4	14.06 lb (6.38 kg)	1 RU / 1.70 inches (4.32 cm)	17.34 inches (44.0 cm)	15.25 inches (38.7 cm)
VX-RPS-1000	11.51 lb (5.22 kg)	1 RU / 1.64 inches (4.17 cm)	5.27 inches (13.38 cm)	15.21 inches (38.6 cm)
VX-RPS-CH3	9.26 lb (4.20 kg)	1 RU / 1.64 inches (4.17 cm)	17.34 inches (44.0 cm)	15.25 inches (38.7 cm)

## Power

Switch Model	Minimum <sup>1</sup> Heat Dissipation (BTU/HR)	Minimum <sup>1</sup> Power Consumption (Watts)	Maximum <sup>2</sup> Heat Dissipation (BTU/HR)	Maximum <sup>2</sup> Power Consumption (Watts)
V400-24t-10GE2	35.8	10.5	82.9	24.3
V400-24p-10GE2	109.9	32.2	1658.3	486
V400-48t-10GE4	67.9	19.9	141.3	41.4
V400-48p-10GE4	186.0	54.5	3077.8	902
VX-RPS-1000	141.3	41.4	3152.8	924

<sup>1</sup> Idle no ports linked.

<sup>2</sup> Fans high all ports 100% traffic.

## PoE Power Budget

Switch Model	Internal Power Supply	External RPS
V400-24p-10GE2	380 W	*380 W
V400-48p-10GE4	740 W	*740 W

\* Redundant power only

## Fan and Acoustic Noise

Switch Model	Acoustic Information Bystander Sound Pressure	Declared Sound Power (LWAD)*
V400-24t-10GE2	41.6 (Duty 30%) / 59.4 (max.)	4.4 (Duty 30%) / 6.2 (max.)
V400-24p-10GE2	47.5 (Duty 30%) / 64.0 (max.)	5.0 (Duty 30%) / 6.7 (max.)
V400-48t-10GE4	43.4 (Duty 30%) / 61.1 (max.)	4.6 (Duty 30%) / 6.4 (max.)
V400-48p-10GE4	48.5 (Duty 30%) / 65.5 (max.)	5.1 (Duty 30%) / 6.8 (max.)

## Environmental Specifications

- EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage
- EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation
- EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational
- EN/ETSI 300 753 (1997-10) - Acoustic Noise
- ASTM D3580 Random Vibration Unpackaged 1.5 G

## Environmental Compliance

- EU RoHS - 2011/65/EU
- EU WEEE - 2012/19/EU
- China RoHS - SJ/T 11363-2006
- Taiwan RoHS CNS 15663(2013.7)

## Operating Conditions

- Temp: 0° C to 50° C (32° F to 122° F) - all models
- Humidity: 10% to 95% relative humidity, non-condensing
- Altitude: 0 to 3,000 meters (9,842 feet) - all models
- Shock (half sine): 30 m/s<sup>2</sup> (3 G), 11 ms, 6 shocks
- Random vibration: 3 to 500 Hz at 1.5 G rms

## Packaging and Storing Specifications

- Temp: -40° C to 70° C (-40° F to 158° F)
- Humidity: 10% to 95% relative humidity, non-condensing
- Packaged Shock (half sine): 180 m/s<sup>2</sup> (18 G), 6 ms, 600 shocks
- Packaged Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G
- Packaged Random Vibration: 5 to 20 Hz at 1.0 ASD w/-3 dB/oct. from 20 to 200 Hz
- Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

## Regulatory and Safety

### North American ITE

- UL 60950-1 2nd edition A2:2014, Listed Device (U.S.)
- CSA 22.2 No. 60950-1 2nd edition 2014(Canada)
- Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
- CDRH Letter of Approval (US FDA Approval)

### European ITE

- EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 2nd Ed.
- EN 60825-1:2007 / IEC 60825-1:2007 Class 1 (Lasers Safety)
- 2014 / 35/ EU Low Voltage Directive

## International ITE

- CB Report & Certificate per IEC 60950-1 : 2005+A1:2009+A2:2013 + National Differences
- AS/NZS 60950-1 (Australia /New Zealand)

## EMI/EMC Standards

### North American EMC Certifications

- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)

### European EMC Certifications

- EN 55032:2015 Class A
- EN 55024:2010
- EN 61000-3-2: 2014 (Harmonics)
- EN 61000-3-3: 2013 (Flicker)
- EN 300 386 v1.6.1 (EMC Telecommunications)
- 2014/30/EU EMC Directive

### International EMC Certifications

- CISPR 32:2015, Class A (International Emissions)
- AS/NZS CISPR32:2015
- CISPR 24:2010 Class A (International Immunity)
- IEC 61000-4-2:2008/EN 61000-4-2:2009 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria B
- IEC 61000-4-3:2010/EN 61000-4-3:2006 +A1:2008 +A2:2010 Radiated Immunity 10V/m, Criteria A
- IEC 61000-4-4:2012. / EN 61000-4-4:2012 Transient Burst, 1 kV, Criteria A
- IEC 61000-4-5:2014 /EN 61000-4-5:2014 Surge, 1 kV L-L, 2 kV L-G, Level 3, Criteria B
- IEC 61000-4-6:2013/EN 61000-4-6:2014 Conducted Immunity, 0.15-80 MHz, 10Vrms, 80%AM (1kHz), Criteria A
- IEC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods, Criteria C

### Country Specific Certifications

- VCCI Class A (Japan Emissions)
- ACMA RCM (Australia Emissions)
- CCC Mark
- KCC Mark, EMC Approval (Korea)

### Telecom Standards

- CE 2.0 Compliant



## Ordering Information

Part Number	Name	Description
<b>ExtremeSwitching V400 Systems</b>		
18101	V400-24t-10GE2	V400 Series 24 x 10/100/1000BASE-T, 2 x 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans
18102	V400-24p-10GE2	V400 Series 24 x 10/100/1000BASE-T PoE+, 2 x 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans
18103	V400-48t-10GE4	V400 Series 48 x 10/100/1000BASE-T, 4 x 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans
18104	V400-48p-10GE4	V400 Series 48 x 10/100/1000BASE-T PoE+, 4 x 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans
18201	VX-RPS-CH3	V400 RPS 3-Slot Modular Shelf
18202	VX-RPS-1000	VX-RPS-1000 redundant power supply for use with V400 RPS 3-Slot Modular shelf
<b>1G / 10 G Optical Transceivers and Direct Attach Cables</b>		
10051H	1000BASE-SX SFP, Hi	1000BASE-SX SFP, MMF 220 & 550 meters, LC connector, Industrial Temp
10052H	1000BASE-LX SFP, Hi	1000BASE-LX SFP, MMF 220 & 550 meters, SMF 10km, LC connector, Industrial Temp
10056H	1000BASE-BX-D BiDi SFP, Hi	1000BASE-BX-D SFP, 1490-nm TX/1310-nm RX wavelength, Industrial Temp
10057H	1000BASE-BX-U BiDi SFP, Hi	1000BASE-BX-U SFP, 1310-nm TX/1490-nm RX wavelength, Industrial Temp
10070H	10/100/1000BASE-T SFP, Hi	10/100/1000BASE-T SFP module, CAT5 cable 100m link, RJ45-connector for Giga Bit Ethernet SFP Port, Industrial Temp
10304	1m SFP+ Cable	10 Gigabit Ethernet SFP+ passive cable assembly, 1m length.
10305	3m SFP+ Cable	10 Gigabit Ethernet SFP+ passive cable assembly, 3m length.
10306	5m SFP+ Cable	10 Gigabit Ethernet SFP+ passive cable assembly, 5m length.
10307	10m SFP+ Cable	10 Gigabit Ethernet SFP+ passive cable assembly, 10m length.
10GB-F10-SFPP	10 GB, ACTIVE OPTICAL DAC, 10 M	10 GB, ACTIVE OPTICAL DAC, 10 M
10GB-F20-SFPP	10 GB, ACTIVE OPTICAL DAC, 20 M	10 GB, ACTIVE OPTICAL DAC, 20 M
10338	10Gb SFP+ 10GBASE-T	10Gb SFP+, 10GBASE-T RJ45, 30m with Cat6a

## Warranty

As a customer-centric company, Extreme Networks is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your product repaired or media replaced as soon as possible.

All V400 Series switches come with the following Extreme Networks lifetime warranty against defects.

- LLW eAHR

For warranty details, visit:

<http://www.extremenetworks.com/support/policies>.

## Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support.



<http://www.extremenetworks.com/contact> / Phone +1-408-579-2800

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