

# ExtremeSwitching™ X435 Series

## Highlights

- Cost-effective standalone switches for edge, branch and small site deployments
- ExtremeCloud IQ™ and ExtremeCloud IQ - Site Engine for powerful, secure and easy to use cloud-based network management
- Fabric Attach for automated connectivity to Extreme's Fabric Connect enabling simplified provisioning and enhanced security

## Key Hardware Features

- 8-port and 24-port models with Gigabit Ethernet connectivity
- 4 x 1Gb/2.5Gb integrated uplink ports
- 30W PoE/PoE+ models for powered connection of edge devices
- Fanless models for silent operation – ideal for classrooms, offices or retail locations
- 8-port switch model that can draw power from an upstream PoE switch – eliminating need for a separate PSU
- Non-blocking, wire-speed design

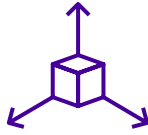


## Economical Edge Switches for Distributed Enterprises, Branches and Small Sites

The ExtremeSwitching X435 Series are economical, standalone Ethernet switches suited to the needs of cost-conscious enterprises looking for a value-based edge solution. Powered by Extreme Networks ExtremeXOS, the X435 Series offers comprehensive Layer 2 switching, static routing, advanced PoE, role-based policy and comprehensive security services. This makes it ideal for enterprises looking for cost-effective Ethernet connectivity in their branch/small sites or at their network edge.

The X435 Series consist of three 8-port compact Gigabit Ethernet switches and two 24-port Gigabit Ethernet models with up to 4 x 1Gb/2.5Gb SFP uplink ports. 8-port models come without a fan enabling quiet operation in noise sensitive environments. IEEE 802.3at PoE+ models are also available to power connected IP Phones, wireless APs, surveillance cameras or other devices.

The family also includes an 8-port model supporting PoE pass-through that can draw power from an upstream PoE switch while providing up to 100W of downstream PoE to connected Ethernet devices.



## Flexible PoE

The X435 Series provides standards-based IEEE 802.3at 30W access ports, as well as IEEE 802.3bt 60W/90W uplink ports on the X435-8P-2T-W model. PoE eliminates the need for additional electrical cabling and circuits otherwise needed to power edge devices, such as IP phones or wireless APs. The X435 Series also provides the following capabilities to address the unique needs of powered edge devices:

- **Perpetual PoE** which enables PoE power to be maintained during a switch re-start, preventing attached IoT devices from being disrupted or rebooted during the switch reset.
- **Fast PoE** which enables power to be supplied to connected edge or IoT devices before switch boot-up completion, speeding the time for powered end-points to start up.



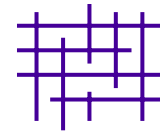
## PoE Power from Upstream Switch

The X435-8P-2T-W model draws all its required power from an upstream switch over its two Ethernet IEEE 802.3bt Type 4 (30W/60W/90W) links. This eliminates the need for a separate power supply unit, while still enabling the delivery of downstream PoE power. By drawing power over both 90W uplinks, the X435-8P-2T-W can deliver up to 100W of downstream PoE power.



## Audio Video Bridging

The X435 series supports IEEE 802.1 Audio Video Bridging to enable reliable, real-time audio/video transmission over Ethernet. AVB technology delivers the quality of service required for today's high-definition and time-sensitive multimedia streams.



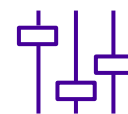
## Fabric Attach

Fabric Attach on the X435 can be used to automate the connection to Extreme's campus-based Fabric Connect solution. Fabric Attach provides zero-touch edge provisioning and allows the X435 to take advantage of the virtualized services and inherent security capabilities of the Extreme Fabric Connect infrastructure.



## Role-Based Policy

The X435 supports role-based policies centrally administered through the ExtremeControl policy manager. This policy framework empowers network administrators to define distinct roles or profiles to represent specific operational groups that may exist in an enterprise. Each defined role can then be granted individualized access to specific network services or applications – and these access privileges remain associated with users as they move across both wired and wireless network access points.



## Management

The X435 Series can be managed in a variety of ways. Simple on-box management functions are delivered by a web-based GUI and a generic CLI is available for manual configuration.

ExtremeCloud™ IQ along with ExtremeCloud IQ – Site Engine also provides a comprehensive unified management capability with a consolidated view of users, devices and applications for wired and wireless networks. Zero touch provisioning lets one quickly bring new X435 switches online and a granular view enables efficient inventory and network topology management.

# Product Specifications

## Performance and Scaling

Switch Model	Max Active 10/100/1000BASE-T Ports	Max Active 1Gb/2.5Gb* SFP Ports	Aggregated Switch Bandwidth	Frame Forwarding Rate
X435-8T-4S	8	4	36 Gbps	26.8 Mpps
X435-8P-4S	8	4	36 Gbps	26.8 Mpps
X435-8P-2T-W	10	–	20 Gbps	14.9 Mpps
X435-24T-4S	24	4	68 Gbps	50.6 Mpps
X435-24P-4S	24	4	68 Gbps	50.6 Mpps

- Layer 2/MAC Addresses: 16K
- 4096 VLANs/VMANs (2 VLANs reserved for system use)
- IPv4 LPM Entries: 32
- IPv4 Hosts: 3100
- IPv6 LPM Entries: 16
- IPv6 Hosts: 500
- IP Multicast groups: 64
- IP Multicast (s,v,g) entries: 1500
- 9216 Byte Max Packet Size (Jumbo Frame)
- 8 queues per port
- 1K ingress ACL rules
- OnePolicy Scaling
- Up to 192 authenticated policy users per switch
- Policy Profiles: 63
- Unique Permit/Deny Rules per switch: 184

## External Ports/Slot

Switch Model	Ports/Slots
X435-8T-4S	<ul style="list-style-type: none"> <li>• 8 x 10/100/1000BASE-T ports               <ul style="list-style-type: none"> <li>• Full / Half-Duplex (auto-sensing)</li> </ul> </li> <li>• 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated)</li> <li>• 1 x Serial (console port RJ-45)</li> <li>• 1 x USB A port for external USB flash</li> </ul>
X435-8P-4S	<ul style="list-style-type: none"> <li>• 8 x 10/100/1000BASE-T 802.3at (30W) PoE ports               <ul style="list-style-type: none"> <li>• Full / Half-Duplex (auto-sensing)</li> </ul> </li> <li>• 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated)</li> <li>• 1 x Serial (console port RJ-45)</li> <li>• 1 x USB A port for external USB flash</li> </ul>
X435-8P-2T-W	<ul style="list-style-type: none"> <li>• 8 x 10/100/1000BASE-T 802.3at (30w) access ports               <ul style="list-style-type: none"> <li>• Full / Half-Duplex (auto-sensing)</li> </ul> </li> <li>• 2 x 10/100/1000BASE-T 802.3bt Type 3/4 (60W/90W) PoE ports</li> <li>• 1 x Serial (console port RJ-45)</li> <li>• 1 x USB A port for external USB flash</li> </ul>
X435-24T-4S	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T access ports               <ul style="list-style-type: none"> <li>• Full / Half-Duplex (auto-sensing)</li> </ul> </li> <li>• 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated)</li> <li>• 1 x Serial (console port RJ-45)</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 1 x USB A port for external USB flash</li> </ul>
X435-24P-4S	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000BASE-T 802.3at (30W) PoE ports               <ul style="list-style-type: none"> <li>• Full / Half-Duplex (auto-sensing)</li> </ul> </li> <li>• 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated)</li> <li>• 1 x Serial (console port RJ-45)</li> <li>• 1 x 10/100/1000BASE-T out-of-band management port</li> <li>• 1 x USB A port for external USB flash</li> </ul>

\* With ExtremeXOS 32.2, 2.5Gb uplink support has been qualified between the X435 and 5520-24X models using specific 10Gb transceivers. See the Extreme Optics Compatibility Tool for details.

## Weights and Dimensions

Switch Model	Weight	
X435-8T-4S	4.12 lb/1.87 kg	12.6in W / 1.71in H / 7.9in D 320mm x 43.5mm x 200mm
X435-8P-4S	4.85 lb/2.2 kg	
X435-8P-2T-W	3.15 lb/1.43 kg	8.2in W / 1.73in H / 10.1in D 209.5mm x 44mm x 256.6mm
X435-24T-4S	6.5 lb/2.95 kg	17.4in W / 1.73in H / 10.0in D 441mm x 43.5mm x 254mm
X435-24P-4S	7.67 lb/3.48 kg	

## Minimum/Maximum Power Consumption and Heat Dissipation

Switch Model	Minimum Power Consumption (Watts)	Minimum Heat Dissipation (BTU/hr)	Maximum Power Consumption (Watts) <sup>1</sup>	Maximum Heat Dissipation (BTU/hr) <sup>2</sup>
X435-8T-4S	6.5	22.1	16.7	57.1
X435-8P-4S	8.0	27.3	155.2	106.4
X435-8P-2T-W	10.9	37.2	122.5	76.7
X435-24T-4S	7.8	26.5	21.3	72.7
X435-24P-4S	12.9	43.9	449.8	238.3

<sup>1</sup>Includes maximum PoE load (W) through the switch

<sup>2</sup> Does not include PoE load heat dissipated through external electronic load

## PoE Power Budget

Switch Model	Max PoE Budget
X435-8P-4S	124W
X435-8P-2T-W	100W <sup>3</sup>
X435-24P-4S	370W

<sup>3</sup>Maximum supplied PoE power when drawing power over 2 x 90W PoE input links. See PoE Power Budget Values table for other X435-8P-2T-W configurations and respective PoE budget values.

## PoE Power Budget Values for X435-8P-2T-W

PoE Input link(s) <sup>4</sup>	Max PoE Budget
2 x 90W	100W
1 x 90W	45W
2 x 60W	65W
1 x 60W	25W
2 x 30W	25W
1 x 30W	0W

<sup>4</sup>From an upstream X465 (or equivalent) PoE switch

## Fan and Acoustic Noise

Switch Model	Ambient Temp	PoE	Main Fan Speed (% of max)	PSU1 + PSU2	Bystander Sound Pressure	Declared Sound Pressure (L <sub>WAd</sub> )
X435-24P-4S	25C	370W	45%	1100W (1/2 of max POE power)	45.4	56

Note: Acoustic noise levels show here represent noise emitted by the switch at room ambient temperatures. Normal operating temperature range: 0°C to 45°C.

## CPU/Memory

- ARM A9 CPU
- 512 MB DRAM
- 128 MB Flash

## Environmental

### 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

- Temperature
  - **8-port X435 models:** 0° C to 40° C (32° F to 104° F)
  - **24-port X435 models:** 0° C to 45° C (32° F to 113° F)
- Humidity: 10% to 95% relative humidity, non-condensing
- Altitude: 0 to 3,000 meters (9,850 feet)
- Shock (half sine) 30m/s<sup>2</sup> (3G), 11ms, 60 shocks
- Random vibration: 3 to 500 Hz at 1.5 G rms

### Packaging and Storage 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
- UL 62368-1
- Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
- CDRH Letter of Approval (US FDA Approval)
- CAN/CSA 22.2 No. 60950-1
- CAN/CSA No. 22.2 62368-1-14

### European ITE

- EN 60950-1, EN 62368-1
- EN 60825-1 Class 1 (Lasers Safety)
- 2014 / 35/ EU Low Voltage Directive

### International ITE

- CB Report & Certificate per IEC 60950-1 AS/NZS 60950-1 (Australia /New Zealand)
- IEC 62368-1
- GB 4943.1-2011
- CNS 14336-1

## EMI/EMC Standards

### North American EMC for ITE

- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)
- European EMC Standards
- EN 55032 Class A
- EN 55024
- EN 55035
- EN 61000-3-2,2014 (Harmonics)
- EN 61000-3-3 2013 (Flicker)
- EN 300 386 (EMC Telecommunications)
- 2014/30/EU EMC Directive
- EN 55011 Class A

### International EMC Certifications

- CISPR 32, Class A (International Emissions)
- AS/NZS CISPR32
- CISPR 24 Class A (International Immunity)
- IEC 61000-4-2 / EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria A
- IEC 61000-4-3 / EN 61000-4-3 Radiated Immunity 10V/m, Criteria A
- IEC 61000-4-4 / EN 61000-4-4 Transient Burst, 1 kV, Criteria A
- IEC 61000-4-5 / EN 61000-4-5 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria A
- IEC 61000-4-6 Conducted Immunity, 0.15-80 MHz, 10V/m unmod. RMS, Criteria A
- IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C
- IEC 61000-4-8 / EN 61000-4-8
- CISPR 11 Class A
- GB/T 9254-2008

### Country Specific

- VCCI Class A (Japan Emissions)
- ACMA RCM (Australia Emissions)
- CCC Mark (China)
- KCC Mark, EMC Approval (Korea)
- EAC Mark (Custom Union)
- NRCS / ICASA Mark (South Africa)
- BSMI Mark (Taiwan)

### Telecom Standards

- CE 2.0 Compliant

## IEEE 802.3 Media Access Standards

- IEEE 802.3bz 2.5GBASE-X\*
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3at PoE Plus
- IEEE 802.3bt Type3 PoE
- IEEE 802.3az Energy Efficient Ethernet

\*2.5Gb uplink support is a future capability

## Ordering Notes

Each X435 Series SKU includes the base unit along with integrated power supply, wall or rack-mount kit (depending on model) and fan module (when required). It also includes an ExtremeXOS Value Edge Feature software license. Power cords, transceiver/optics and optional AVB Feature Pack must be ordered separately.

# Ordering Information

Part Number	Product Name	Product Description
<b>ExtremeSwitching X435 Systems</b>		
X435-8T-4S	X435 -8T-4S system	ExtremeSwitching X435 switch with 8x10/100/1000BASE-T full / half duplex ports, 4x1G/2.5G unpopulated SFP ports, 1 AC PSU, wall-mount kit (16573), ExtremeXOS Value Edge license, fanless
X435-8P-4S	X435-8P-4S system	ExtremeSwitching X435 switch with 8x10/100/1000BASE-T PoE+ full / half duplex ports, 4x1G/2.5G unpopulated SFP ports, 1 AC PSU, wall-mount kit (16573), ExtremeXOS Value Edge license, fanless
X435-8P-2T-W	X435-8P-2T-W system	ExtremeSwitching X435 switch with 8 x 10/100/1000BASE-T PoE+ full/half duplex ports, 2x10/100/1000BASE-T 802.3bt Type 4 (30W/60W/90W) uplink ports (up to 100w PoE pass-through), wall-mount kit (16573), ExtremeXOS Value Edge license, fanless
X435-24T-4S	X435-24T-4S system	ExtremeSwitching X435 switch 24x10/100/1000BASE-T full / half duplex ports, 4x1G/2.5G unpopulated SFP ports, 1 AC PSU, rack-mount kit (XN-2P-RMKIT-004), ExtremeXOS Value Edge license, fanless
X435-24P-4S	X435-24P-4S system	ExtremeSwitching X435 switch 24x10/100/1000BASE-T PoE+ full / half duplex ports, 4x1G/2.5G unpopulated SFP ports, 1 AC PSU, rack-mount kit (XN-2P-RMKIT-004), ExtremeXOS Value Edge license
<b>Accessories</b>		
XN-2P-RMKIT-002	Optional Rack Mount Kit for X435-8T-4S & X435-8P-4S	Optional Rack Mount kit for mounting a single X435-8T-4S or X435-8P-4S unit in a 1 RU rack space
XN-2P-RMKIT-003	Optional Rack Mount Kit for X435-8P-2T-W	Optional Rack Mount kit for mounting a single X435-8P-2T-W unit in a 1 RU rack space
XN-2P-RMKIT-004	Spare Rack Mount Kit for X435 24-port models	Spare Two Post Rack Mount kit for use with X435 24-port models
16572	Optional Dual Rack Mount Kit for X435-8P-2T-W	Kit for mounting two X435-8P-2T-W switches side-by-side in a 19-inch rack
16573	Spare Wall Mount Kit for X435 8-port models	Spare Wall Mounting kit for use X435 8-port models
<b>Software Licenses</b>		
EXOS-AVB-FP-X435	X435 Multimedia (AVB) License	Audio Video Bridging Feature Pack for X435 Series.
<b>ExtremeCloud IQ Pilot Licenses</b>		
XIQ-PIL-S-C-EW	XIQ Pilot SAAS Subscription and EW support (1 device)	ExtremeCloud IQ Pilot SaaS Subscription and EW SaaS support for one (1) device
XIQ-PIL-S-C-PWP	XIQ Pilot SAAS Subscription and PWP support (1 device)	ExtremeCloud IQ Pilot SaaS Subscription and PWP SaaS support for one (1) device

## Warranty

The X435 Series is covered under Extreme's Universal LLW policy. For warranty details, please visit: <http://www.extremenetworks.com/go/warranty>

## Power Cords

In support of the Extreme Networks Green initiatives, power cords can be ordered separately, but need to be specified at time of ordering. Please refer to [www.extremenetworks.com/product/powercords/](http://www.extremenetworks.com/product/powercords/) for details on power cord availability for this product.

## Optics/Transceivers

For a list of the optics/transceivers supported on X435 Series hardware, refer to our Extreme Optics Compatibility Tool at <https://optics.extremenetworks.com>.

## Maintenance Services

Extreme's maintenance and support services, with 100% in-sourced engineering experts and over 90% first-person resolution, ensure efficient operations of your business-essential network. 24x7x365 phone support, advanced part replacement, and on-site support augment your staff with experienced resources that help you mitigate critical network issues fast. Visit [Extreme Maintenance Services](#) for more information.



<http://www.extremenetworks.com/contact>

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