ExtremeSwitching™ X435 Series
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.

*2.5Gb uplink support is a future capability
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

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

- 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

<table>
<thead>
<tr>
<th>Switch Model</th>
<th>Ports/Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>X435-8T-4S</td>
<td>8 x 10/100/1000BASE-T, Full / Half-Duplex (auto-sensing), 4 x 1/2.5GBASE-X SFP uplink ports (unpopulated), 1 x Serial (console port RJ-45), 1 x USB A port for external USB flash</td>
</tr>
<tr>
<td>X435-8P-4S</td>
<td>8 x 10/100/1000BASE-T 802.3at (30W) PoE, Full / Half-Duplex (auto-sensing), 4 x 1/2.5GBASE-X SFP uplink ports (unpopulated), 1 x Serial (console port RJ-45), 1 x USB A port for external USB flash</td>
</tr>
<tr>
<td>X435-8P-2T-W</td>
<td>8 x 10/100/1000BASE-T 802.3at (30W) access, Full / Half-Duplex (auto-sensing), 2 x 10/100/1000BASE-T 802.3bt Type 3/4 (60W/90W) PoE, 1 x Serial (console port RJ-45), 1 x USB A port for external USB flash</td>
</tr>
<tr>
<td>X435-24T-4S</td>
<td>24 x 10/100/1000BASE-T access, Full / Half-Duplex (auto-sensing), 4 x 1/2.5GBASE-X SFP uplink ports (unpopulated), 1 x Serial (console port RJ-45), 1 x USB A port for external USB flash</td>
</tr>
<tr>
<td>X435-24P-4S</td>
<td>24 x 10/100/1000BASE-T 802.3at (30W) PoE, Full / Half-Duplex (auto-sensing), 4 x 1/2.5GBASE-X SFP uplink ports (unpopulated), 1 x Serial (console port RJ-45), 1 x USB A port for external USB flash</td>
</tr>
</tbody>
</table>

* 2.5Gb uplink support is a future capability
## Weights and Dimensions

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

## Minimum/Maximum Power Consumption and Heat Dissipation

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

¹ Includes maximum PoE load (W) through the switch
² Does not include PoE load heat dissipated through external electronic load

## PoE Power Budget

<table>
<thead>
<tr>
<th>Switch Model</th>
<th>Max PoE Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>X435-8P-4S</td>
<td>124W</td>
</tr>
<tr>
<td>X435-8P-2T-W</td>
<td>100W¹</td>
</tr>
<tr>
<td>X435-24P-4S</td>
<td>370W</td>
</tr>
</tbody>
</table>

¹ 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

<table>
<thead>
<tr>
<th>PoE Input link(s)⁴</th>
<th>Max PoE Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 90W</td>
<td>100W</td>
</tr>
<tr>
<td>1 x 90W</td>
<td>45W</td>
</tr>
<tr>
<td>2 x 60W</td>
<td>65W</td>
</tr>
<tr>
<td>1 x 60W</td>
<td>25W</td>
</tr>
<tr>
<td>2 x 30W</td>
<td>25W</td>
</tr>
<tr>
<td>1 x 30W</td>
<td>0W</td>
</tr>
</tbody>
</table>

⁴ From an upstream X465 (or equivalent) PoE switch

## Fan and Acoustic Noise

<table>
<thead>
<tr>
<th>Switch Model</th>
<th>Ambient Temp</th>
<th>PoE</th>
<th>Main Fan Speed (% of max)</th>
<th>PSU1 + PSU2</th>
<th>Bystander Sound Pressure</th>
<th>Declared Sound Pressure (Lmax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X435-24P-4S</td>
<td>25C</td>
<td>370W</td>
<td>45%</td>
<td>1100W (1/2 of max PoE power)</td>
<td>45.4</td>
<td>56</td>
</tr>
</tbody>
</table>

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/s² (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
- Package Shock (half sine): 180 m/s² (18 G), 6 ms, 600 shocks
- Package Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G
- Package Random Vibration: 5 to 20 Hz at 1.0 ASD w/ -3 dB/oct. from 20 to 200 Hz
- Package 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 CFR 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 60825-1Class 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
- CISPER II 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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Name</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExtremeSwitching X435 Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X435-8T-4S</td>
<td>X435 -8T-4S system</td>
<td>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</td>
</tr>
<tr>
<td>X435-8P-4S</td>
<td>X435-8P-4S system</td>
<td>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</td>
</tr>
<tr>
<td>X435-8P-2T-W</td>
<td>X435-8P-2T-W system</td>
<td>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</td>
</tr>
<tr>
<td>X435-24T-4S</td>
<td>X435-24T-4S system</td>
<td>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</td>
</tr>
<tr>
<td>X435-24P-4S</td>
<td>X435-24P-4S system</td>
<td>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, fanless</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>XN-2P-RMKIT-002</td>
<td>Optional Rack Mount Kit for X435-8T-4S &amp; X435-8P-4S</td>
</tr>
<tr>
<td>XN-2P-RMKIT-003</td>
<td>Optional Rack Mount Kit for X435-8P-2T-W</td>
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<tr>
<td>XN-2P-RMKIT-004</td>
<td>Spare Rack Mount Kit for X435-24-port models</td>
</tr>
<tr>
<td>16572</td>
<td>Optional Dual Rack Mount Kit for X435-8P-2T-W</td>
</tr>
<tr>
<td>16573</td>
<td>Spare Wall Mount Kit for X435 8-port models</td>
</tr>
</tbody>
</table>

Software Licenses

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXOS-AVBB-FP-X435</td>
<td>X435 Multimedia (AVB) License</td>
</tr>
</tbody>
</table>

ExtremeCloud IQ Pilot Licenses

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Name</th>
</tr>
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<tbody>
<tr>
<td>XIQ-PIL-S-C-EW</td>
<td>XIQ Pilot SaaS Subscription and EW support (1 device)</td>
</tr>
<tr>
<td>XIQ-PIL-S-C-PWP</td>
<td>XIQ Pilot SaaS Subscription and PWP support (1 device)</td>
</tr>
</tbody>
</table>

* 2.5Gb uplink support is a future capability

Warranty
The X435 Series is covered under Extreme’s Universal LLW policy. For warranty details, please visit: [http://www.extremenetworks.com/go/warranty](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](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](http://www.extremenetworks.com) for more information.