Highlights

- Cost-effective standalone switches for edge, branch and small site deployments

- 8-port and 24-port Gigabit Ethernet connectivity

- 4 x 1Gb/2.5Gb* Ethernet uplink ports

- PoE/PoE+ models for powered connection of edge devices

- Fanless models for silent operation – ideal for classrooms, offices or retail locations

- System that can draw power from an upstream PoE switch – eliminating need for a separate PSU

- Non-blocking, wire-speed design

Smart Management Choices

- ExtremeCloud™ IQ for powerful, simple and secure public or private cloud management

- Extreme Management Center for centralized, unified management capabilities
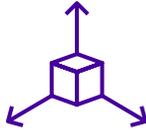
ExtremeSwitching™ X435 Series

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.
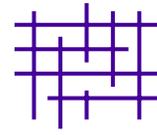
PoE Power from Upstream Switch

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.
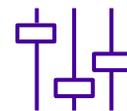
Fabric Attach

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 alond with Extreme Management Center (XMC) 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	• 8 x 10/100/1000BASE-T ports • 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
X435-8P-4S	• 8 x 10/100/1000BASE-T 802.3at (30W) PoE ports • 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
X435-8P-2T-W	• 8 x 10/100/1000BASE-T 802.3at (30w) access ports • Full / Half-Duplex (auto-sensing) • 2 x 10/100/1000BASE-T 802.3bt Type 3/4 (60W/90W) PoE ports • 1 x Serial (console port RJ-45) • 1 x USB A port for external USB flash
X435-24T-4S	• 24 x 10/100/1000BASE-T access ports • Full / Half-Duplex (auto-sensing) • 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated) • 1 x Serial (console port RJ-45) • 1 x 10/100/1000BASE-T out-of-band management port • 1 x USB A port for external USB flash
X435-24P-4S	• 24 x 10/100/1000BASE-T 802.3at (30W) PoE ports • Full / Half-Duplex (auto-sensing) • 4 x 1/2.5GBASE-X SFP uplink ports* (unpopulated) • 1 x Serial (console port RJ-45) • 1 x 10/100/1000BASE-T out-of-band management port • 1 x USB A port for external USB flash

* 2.5Gb uplink support is a future capability

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)[1]	Maximum Heat Dissipation (BTU/hr)[2]
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

[1] Includes maximum PoE load (W) through the switch

[2] 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[3]
X435-24P-4S	370W

[3] 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)[4]	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

[4] 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_{WAd})
X435-24P-4S	25C	370W	45%	1100W (1/2 of max POE power	45.4	56

Note: Acostic noise levels show here represent noise emitted by the switch at room ambient temperatures. Normal operating temperatre 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
- Packaged Shock (half sine): 180 m/s2 (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 60825-1Class 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 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
ExtremeSwitching X435 Systems		
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
Accessories		
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
Software Licenses		
EXOS-AVB-FP-X435	X435 Multimedia (AVB) License	Audio Video Bridging Feature Pack for X435 Series.
Transceiver/Optics		
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
10053H	1000BASE-ZX SFP, Hi	1000BASE-ZX SFP SMF 70km 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
10058	100BASE-BX-D BiDi SFP	100BASE-BX-D BiDi SFP module SMF 10km link LC-connector
10059	100BASE-BX-U BiDi SFP	100BASE-BX-U BiDi SFP module SMF 10km link LC-connector
10060	100FX/1000LX SFP2	Mini-GBIC SFP dual-speed 100 LX / 1000 LX LC connector
10060H	100LX/1000LX SFP Hi	Dual-speed 100 LX / 1000 LX SFP LC connector Industrial Temp
10065	10/100/1000BASE-T SFP	10/100/1000BASE-T SFP module CAT5 cable 100m link RJ45-connector
10066	100BASE-LX10 SFP	100BASE-LX10 SFP module SMF 10km link LC-connector for Fast Ethernet SFP Port.
10067	100BASE-FX SFP	100BASE-FX SFP module MMF 2km link LC-connector for Fast Ethernet SFP Port. I-temp
10070H	10/100/1000BASE-T SFP, Hi	10/100/1000BASE-T SFP module CAT5 cable 100m link RJ45-connector Industrial Temp
10071H	1000BASE-SX SFP 10 Pack, Hi	1000BASE-SX SFP 10 Pack Industrial Temp
I-MGBIC-GLX	Industrial 1000Base-LX SFP	Industrial 1000BASE-LX, MM, 1310nm Long Wave Length, 550m, LC SFP
I-MGBIC-GSX	Industrial 1000Base-SX SFP	Industrial 1000BASE-SX, MM, 850nm Short Wave Length, 220/550m, LC SFP

* 2.5Gb uplink support is a future capability

Ordering Information (cont.)

Part Number	Product Name	Product Description
Transceiver/Optics (cont.)		
I-MGBIC-LC03	1000Base-LX MMF	Industrial 1000BASE-LX, MM, 1310nm, 2KM with 62.5 MMF, 1KM with 50 MMF, LC SFP
MGBIC-02	1000BASE-T RJ45 MINI GBIC	1000BASE-T, RJ45 MINI GBIC
MGBIC-08	1000BASE-ELX SFP, 70KM	MINI GBIC 1000BASE-ELX (70KM) 1 LC PORT
MGBIC-BX10-D	1000BASE-BX-D SFP - 10KM	1000BASE-BX10-D Single Fiber SM, BiDi, 1490nm Tx / 1310nm RX, 10KM, Simplex LC SFP (must be paired with MGBIC-BX10-U)
MGBIC-BX10-U	1000BASE-BX-U SFP - 10KM	1000BASE-BX10-U Single Fiber SM, BiDi, 1310nm Tx / 1490nm RX,10KM, Simplex LC SFP (must be paired with MGBIC-BX10-D)
MGBIC-BX40-D	100BASE-BX40-D SFP 40KM	1000BASE-BX40-D Single Fiber SM, BiDi, 1490nm Tx / 1310nm RX, 40KM, Simplex LC SFP (must be paired with MGBIC-BX40-U)
MGBIC-BX40-U	100BASE-BX40-U SFP 40KM	1000BASE-BX40-U Single Fiber SM, BiDi, 1310nm Tx / 1490nm RX, 40KM, Simplex LC SFP (must be paired with MGBIC-BX40-D)
MGBIC-BX120-D	1000BASE-BX-D BiDi SFP 120KM	1000BASE-BX120-D Single Fiber SM, BiDi, 1590nm Tx / 1490nm RX, 120KM, Simplex LC SFP (must be paired with MGBIC-BX120-U)
MGBIC-BX120-U	1000BASE-BX-U BiDi SFP 120KM	1000BASE-BX120-U Single Fiber SM, BiDi, 1490nm Tx / 1590nm RX, 120KM, Simplex LC SFP (must be paired with MGBIC-BX120-D)
MGBIC-LC01	1000BASE-SX SFP	MINI GBIC 1000BASESX W/ 1 LC MM PORT
MGBIC-LC04	100BASE-FX SFP 2KM	100BASE-FX MM 1310NM 2 KM LC SFP
MGBIC-LC05	100BASE-LX SFP 10 KM	100BASE-LX10 SM 1310NM 10 KM LC SFP
MGBIC-LC07	1000BASE-EZX SFP	1GB,802.3 SM,1550 NM,110 KM,LC SFP
MGBIC-LC09	1000BASE-LX SFP, Hi	MINI GBIC 1000BASE-LX W/ 1 LC SM PORT
ExtremeCloud IQ Pilot Licenses		
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
XIQ-PIL-S-OP-EW	XIQ Pilot RTU license and EW support (1 device)	ExtremeCloud IQ Pilot SW Subscription (RTU license, EW SW support for one (1) device
XIQ-PIL-S-OP-PWP	XIQ Pilot RTU License and PWP support (1 device)	ExtremeCloud IQ Pilot SW Subscription (RTU license, PWP SW 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/ for details on power cord availability for this product.

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