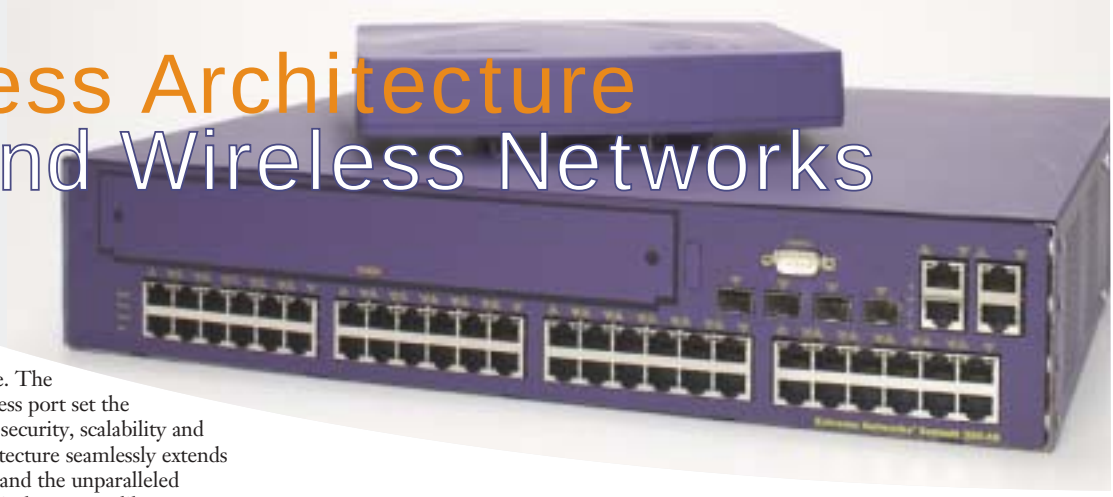
Unified Access Architecture for Wired and Wireless Networks



The Unified Access Architecture from Extreme Networks® introduces the first switch capable of delivering wired and wireless applications across a completely integrated enterprise infrastructure. The Summit 300-48™ switch and the Altitude 300™ wireless port set the standard for wireless switching, furnishing unmatched security, scalability and manageability. What's more, the Unified Access Architecture seamlessly extends the centralized network management of EPICenter™ and the unparalleled policy management of ExtremeWare® to wired and wireless users alike.

The Altitude 300 wireless port is unburdened by expensive CPUs, memory, system software and power supplies. Instead, Extreme's unique AccessAdapt technology lets the Altitude 300 "inherit" software and configuration information as soon as it's connected to a Summit 300-48. If stolen, the Altitude 300 is immediately rendered inoperable.

The Altitude 300 handles encryption directly in hardware, outperforming access points that rely on software-based encryption. The wireless port implements the government-endorsed Advanced Encryption Standard (AES) and Wi-Fi Protected Access (WPA) to ensure superior security. The Altitude 300 and Summit 300-48 work together to authenticate users, employing IEEE 802.1x and a RADIUS (Remote Authentication Dial-In User Service) server to grant or deny network access. Integrated or detachable antennas establish radio-frequency links between the Altitude 300 and terminals running 802.11a/b/g.

The powerful yet compact (2 RU) Summit 300-48 is equipped with 48 10/100 Ethernet ports and four copper and GBIC ports. With a nonblocking backplane, the Summit 300-48 performs at full wire speed on every port. Modular, hot-swappable load-sharing power supplies, as well as integrated 802.3af Power over Ethernet (PoE), give the Summit 300-48 the reliability required for enterprise-class services, including voice-over-IP (VoIP) and other PoE applications.

The uncompromising features of EPICenter and ExtremeWare enable the Altitude 300 and the Summit 300-48 to identify and locate rogue access points, and lock out intruders using the default firewall-like settings to deny access to anyone who can't be authenticated. Access Intrusion Detection adds an additional layer of protection by setting heuristic policies and thresholds that monitor and manage behavior-based services after users have been authenticated. When combined with ExtremeWare's denial of service (DoS) features, the two deliver uncompromised security—from the access layer to the core.

In addition, ExtremeWare plays a key role in scalability and policy enforcement—an essential consideration for enterprise networks. It works with AccessAdapt to centralize the configuration of all wireless ports. And, with the template-driven Dynamic Reconfiguration capability, security, Quality of Service (QoS) and other policies can be applied immediately to just one or to a group of wireless ports simultaneously, guaranteeing that high priority and delay-sensitive traffic will be processed properly on both wired and wireless ports.

The Unified Access Architecture makes testing the RF link between a client and a wireless port as simple as checking the quality of a cabled connection, providing the ability to troubleshoot users who are experiencing performance problems or frequent disconnects. Layer 1 information, such as signal strength, is gathered, along with upper layer information such as channel ID and encryption ID.

Finally, Extreme's EPICenter network management software ensures that the Unified Access Architecture is truly unified, managing and monitoring all wired and wireless networking elements from a single console—including third-party wireless switches and ports. It also provides advanced management views that can be selected per device, user, action, time or location. Network-wide advanced policies can be set based on Layer 2/Layer 3 topology information, incorporating both the wired and wireless broadcast domains. In addition, Altitude 300 wireless ports can be activated automatically or manually.

Altitude 300 and Summit 300-48 Industry-Leading Feature Set

Hardware

- Air interfaces simultaneously support 802.11a and 802.11g (backward compatible to 802.11b)
- Integrated antennas for 2.4 GHz and 5 GHz operation; detachable antenna interface for both 2.4 GHz and 5 GHz operation
- Multi-purpose mounting bracket for wall, ceiling and tabletop
- Plenum rated for above ceiling installation
- 48 10/100 auto-negotiating Ethernet ports in a 2 RU footprint allow more network connections per inch of rack space
- 4 10/100/1000 ports (UTP and SFP) deliver redundant active uplinks that can be trunked for greater throughput, flexibility, and reliability
- IEEE 802.3af PoE on all 10/100 ports simplifies wireless network and VoIP deployments
- Wire speed Layer 2/Layer 3 switching
- Hot-swappable redundant power supplies maximize network uptime and network availability
- Expansion slot for upgradeability and added application support
- Interoperable with all devices that meet the 802.3af standard

Software

Security

- Rogue Access Point Detection: end-to-end detection with selective lock down for unauthorized access points
- Access Intrusion Detection with heuristic management features for preventing suspicious off-premise users and address spoofing
- Authentication for legacy devices using Network Login with SSL* and for 802.1x compliant devices using PEAP, EAP-TLS, EAP-TTLS and EAP-MD5
- Encryption using Wired Equivalent Privacy (WEP), 802.11i draft, Wi-Fi Protected Access (WPA), Advanced Encryption Standard (AES), and Temporal Key Integrity Protocol (TKIP)
- Access control with access control lists (ACLs), VLANs and thorough DoS protection

Scalability

- AccessAdapt technology provides adaptive personality for WLAN ports based on user-definable profiles
- Dynamic reconfiguration with rollback safety mechanism
- Remote "Air" troubleshooting with air fault isolation to provide defense against poor performance and disconnected users
- Simplified software upgrades with a single software image for Summit 300-48 that maps to each Altitude 300 wireless port device upon connection

Reliability

- QoS auto configuration
- Intrasubnet and intersubnet roaming (via software upgrade)
- SmartRedundancy™ and Spanning Tree Protocol (STP)
- Open Shortest Path First (OSPF) for large meshed networks (via software upgrade)

Performance

- Full line rate bandwidth on every port
- Jumbo frame support for special high-throughput applications

Management

- Extensive management through HTTP, SNMP, RMON and command-line interface
- Serial management port on the front panel for ease of installation
- Advanced and priority-based PoE management

extreme networks™

Altitude 300 Product Specifications

General
Station to station bridging: Configurable (Enable/Disabled within each wireless port)
Collision avoidance: Configurable RTS/CTS threshold (request to send handshake, clear to send handshake)
Configurable transmission rate for broadcasting packets
Configurable fragmentation threshold: Maximum length of 802.11 fragments
Transmit power control for coverage area adjustment
Long/short preamble support

Uplink
Autosensing 10/100BASE-T PoE
802.3x Pause support

Air Interface Standards
IEEE 802.11a (5 GHz)
IEEE 802.11b (2.4 GHz)
IEEE 802.11g (2.4 GHz) (draft)
IEEE 802.11i (draft)

Radio Configurations
Dual band 802.11a/g: provides simultaneous support for 802.11a/g operation with backward compatibility with 802.11b (inherent to 802.11g)

Frequency Bands
802.11a:
5.15 to 5.25 GHz (FCC UNII-low, Japan, Singapore, Americas)
5.25 to 5.35 GHz (FCC UNII-middle, Taiwan, Americas)
5.725 to 5.850 GHz (FCC UNII-high, Americas)
5.470 to 5.725 GHz (Europe)
802.11b/(g):
2.400 to 2.4835 (FCC ISM, Europe, MII, Israel, Americas)
2.400 to 2.497 GHz (Japan)
Some countries or regions may only allow 802.11b operation in the above 2.4 GHz bands.

Operating Channels
5 GHz Band for 802.11a – non-overlapping:
FCC: 12
Europe: 11
Japan: 4
Singapore: 4
Taiwan: 4
2.4 GHz Band for 802.11b/(g) – non-overlapping:
FCC: 3
Europe: 4
Japan: 4
Israel: 2
MII: 3

Data Rates
802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps
802.11b: 1, 2, 5.5, and 11 Mbps
802.11g: 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

Modulation
802.11a:
Orthogonal Frequency Division Multiplexing (OFDM)
BPSK @ 6 and 9 Mbps
QPSK @ 12 and 18 Mbps
16QAM @ 24 and 36 Mbps
64QAM @ 48 and 54 Mbps
802.11b:
Direct sequence spread spectrum DSSS/Complementary code keying (CCK):
DSSS-DBPSK @ 1 Mbps
DSSS-DQPSK @ 2 Mbps
CCK-DBPSK @ 5.5 Mbps
CCK-DQPSK @ 11 Mbps
802.11g:
DSSS/CCK/OFDM
DSSS-DBPSK @ 1 Mbps
DSSS-DQPSK @ 2 Mbps
CCK-DBPSK @ 5.5 Mbps
CCK-DQPSK @ 11 Mbps
OFDM-BPSK @ 6 and 9 Mbps
OFDM-QPSK @ 12 and 18 Mbps
OFDM-16QAM @ 24 and 36 Mbps
OFDM-64QAM @ 48 and 54 Mbps

Receive sensitivity
802.11a:
6 Mbps: -88 dBm
9 Mbps: -87 dBm
12 Mbps: -86 dBm
18 Mbps: -84 dBm
24 Mbps: -81 dBm
36 Mbps: -77 dBm
48 Mbps: -73 dBm
54 Mbps: -69 dBm
802.11b/g:
1 Mbps: -91 dBm
2 Mbps: -88 dBm
5.5 Mbps: -87 dBm
11 Mbps: -85 dBm
6 Mbps: -89 dBm
9 Mbps: -88 dBm
12 Mbps: -87 dBm
18 Mbps: -85 dBm
24 Mbps: -82 dBm
36 Mbps: -79 dBm
48 Mbps: -74 dBm
54 Mbps: -71 dBm

Maximum Transmit Power
802.11a:
5.15 to 5.25 GHz: 16 dBm
5.25 to 5.35 GHz: 19 dBm
5.725 to 5.850 GHz: 19 dBm
802.11b:
17 dBm
802.11g:
15 dBm
Note: Maximum power setting will vary according to individual country regulations.

Available Transmit Power Settings
802.11a:
100% (full)
50%
25%
12.5%
6.25% (minimum)
802.11b:
100% (full)
50%
25%
12.5%
6.25% (minimum)
802.11g:
100% (full)
50%
25%
12.5%
6.25% (minimum)

Integrated and Detachable Antennas
Integrated selection diversity antenna frequency range:
5.15 to 5.850 GHz for 802.11a
2.400 to 2.4835/(2.497) for 802.11b/(g)
Detachable selection diversity antenna frequency range:
5.25 to 5.850 GHz band for 802.11a
2.400 to 2.4835/(2.497) for 802.11b/(g)
(5.15 to 5.25 GHz band operation is disabled when detachable antennas are used)
Detachable antenna connectors:
RP-SMA connectors for 802.11a
RP-TNC connectors for 802.11b/g

Typical range at Maximum Power Setting
802.11a Integrated Antenna
Indoor:
60 ft (18.3 m) @ 54 Mbps
150 ft (45.7 m) @ 18 Mbps
210 ft (64 m) @ 6 Mbps
Outdoor:
100 ft (30.5 m) @ 54 Mbps
550 ft (167.6 m) @ 18 Mbps
1100 ft (335.3 m) @ 6 Mbps

802.11a Detachable Antenna

802.11b/g Integrated Antenna
Indoor:
160 ft (48.8 m) @ 11 Mbps
240 ft (73.2 m) @ 5.5 Mbps
340 ft (103.6 m) @ 2 Mbps
500 ft (152.4 m) @ 1 Mbps
65 ft (19.8 m) @ 54 Mbps
150 ft (45.7 m) @ 18 Mbps
200 ft (61 m) @ 6 Mbps
Outdoor:
450 ft (137.2 m) @ 11 Mbps
780 ft (237.7 m) @ 5.5 Mbps
1000 ft (304.8 m) @ 2 Mbps
1600 ft (487.7 m) @ 1 Mbps
110 ft (33.5 m) @ 54 Mbps
340 ft (103.6 m) @ 18 Mbps
650 ft (198.1 m) @6 Mbps

802.11b/g Detachable Antenna

Regulatory Standards Compliance
Safety:
UL 1950
CSA 22.2 No. 950-95
IEC 60950
EN 60950
Radio Approvals:
FCC Part 15.247, 15.401-15.407
RSS-210 (Canada)
EN 301.893 (Europe)
ARIB STD-T71 (Japan)
AS 4268.2 (Australia)
RSS-139-1, RSS-210 (Canada)
EN 300.328 (Europe)
Telec 33B (Japan)
AS/NZS 3548 (Australia and New Zealand)
EMI and Susceptibility (Class B):
FCC Part 15.107 and 15.109
ICES-003 (Canada)
VCCI (Japan)
EN 301.489-1 and -17 (Europe)
Other:
IEEE 802.11a
IEEE 802.11b
IEEE 802.11g
IEEE 802.3af
FCC Bulletin OET-65C
RSS-102
Wi-Fi member

Dimensions (with secured plastic cover)
8.4 in. (21.3 cm) wide; 6.3 in. (16 cm) deep; 1.6 in. (4 cm) high
Mounting bracket adds 0.8 in. (2 cm) to the height

Weight (with cover)
22.4 oz (635g) add 0.71 oz (20g) for mounting bracket

Environmental
Operational temperature: -32° to 131°F (0° to 55°C)
Humidity: 5 to 95% non-condensing

Power Consumption
9 watts, when both 802.11a and 802.11g are at full power operation. Altitude 300 is powered by PoE.

LEDs
Power (up-ON; fault-BLINKING)
Ethernet (link-ON; activity-BLINKING)
Radio 1 – 802.11a (working-ON; activity-BLINKING)
Radio 2 – 802.11b/g (working-ON; activity-BLINKING)

Warranty
One year

Environmental
Plenum rated – UL 2043

Summit 300-48 Product Specifications

Note: Items marked * are available with a software upgrade

General
RFC 783 TFTP
RFC 951 BootP
RFC 1542 BootP
RFC 2131 BootP/DHCP helper
RFC 1591 DNS (client operation)
RFC 1122 Host requirements
RFC 768 UDP
RFC 792 ICMP
RFC 826 ARP
Trunking
Mirroring
Jumbo Frame support*
FDB bridging and aging
IGMP
802.1D
Extreme Discovery Protocol (EDP)
Route Failover*
Extreme Standby Router Protocol (ESRP)*

IEEE General
IEEE 802.1D Spanning Tree Protocol (STP)
IEEE 802.1Q VLAN tagging
IEEE 802.3ad draft - static config

Power Capacity and Management
IEEE 802.3af
Each port supports up to 15W
Over-subscription: no-connect and disconnect thresholds
When no-connect threshold exceeded, no more power is supplied but all power-connected ports remain enabled
When disconnect threshold exceeded, ports are disconnected based on priority

Routing*
RFC 1812 Router requirements
RFC 791 IP (IP routing with static routes between directly attached VLANs)
RIP V1/V2
OSPF
RFC 2338 VRRP
RRFC 793 TCP

IP Multicast
- IGMP Snooping with configurable router registration forwarding
- RFC 2362 PIM-SM*
- PIM-DM Draft IETF PIM Dense Mode v2-dm-03*
- RFC 1122 DVMRP Host req*
- DVMRP v3 draft IETF DVMRP v3-07*
- RFC 2236 IGMP v2*

Quality of Service
- IEEE 802.1Q - 1998 (802.1p) packet priority
- RFC 2474 DiffServ Precedence
- RFC 2598 DiffServ Expedited Forwarding
- RFC 2597 DiffServ Assured Forwarding
- RFC 2475 DiffServ Core and Edge router functions
- RED
- Bi directional rate shaping

Management
- RFC 1157 SNMPv1/v2c
- RFC 1907 SNMPv2
- RFC 1757 RMON 4 groups: Stats, History, Alarms & Events
- RFC 2021 RMON2 (probe config)
- RFC 2668 MAU
- RFC 1493 Bridge MIB
- RFC 1213 MIB-II
- RFC 2037 Entity MIB
- RFC 2233 Interface MIB
- RFC 2096 IP Forwarding*
- RFC 1724 RIPv2 MIB*
- RFC2613 SMON MIB
- RFC2668 MAUMIB
- RFC2695 Ping MIB
- ExtremeWare private MIB (includes ACL, QoS policy and VLAN config)
- RFC 1866 HTML
- RFC 2068 HTTP
- RFC 854 Telnet
- HTML and telnet management
- Configuration logging
- Multiple images, multiple configs
- Multiple Syslog servers
- 999 local messages, criticals stored across reboots
- RFC 1769 Ver 3 Simple Network Time Protocol
- Ping and traceroute
- DNS Client
- TACACS+ login accounting and CLI authentication
- Web configuration via ports, switch or TFTP download
- Statistics pages for switch, event log, FDB, or ARP, port statistics, errors and utilization
- IPv4 Stack management*
- DOS detection and prevention per CERT (see below)

VLAN Support
802.1d/802.1q VLANs
Port based VLANs

Security
- FIPS-186 (Federal Information Processing Standards Publication 186) Secure Shell 2 (SSH2)
- RFC 1851 3DES-CBC cipher
- RFC 2792 DSA key exchange
- TACACS+
- RFC 2138 RADIUS
- RFC 2139 RADIUS Accounting*
- RADIUS per-command Authentication
- Access Profiles on all routing protocols
- Access Profiles on all management methods*
- MAC Address Lockdown and Limit per VLAN
- Access Control Lists (ACL): Layer 2-4, Ingress and Egress

Denial of Service Protection
- RFC 2267 Network Ingress Filtering
- RPF (Unicast Reverse Path Forwarding) control
- Wire-speed ACLs
- Rate Limiting by ACLs
- SYN attack protection
- Uni-directional session control
- CERT and "rootshell" immunity testing including:- CERT (http://www.cert.org)
  - CA-97.28.Teardrop_Land - Teardrop and "LAND" attack
  - IP Options Attack
  - CA-98-13-tcp-denial-of-service
  - CA-98.01.smurf
  - CA-96.26.ping
  - CA-96.21.tcp_syn_flooding
  - CA-96.01.UDP_service_denial
  - CA95.01.IP_Spoofing_ Attacks_and_Hijacked_ Terminal _Connections
- Host Attacks (http://www.rootshell.org/beta/exploits.html)
  - Syndrop
  - Nestea
  - Latierra
  - Newtear
  - Bonk
  - Winnuke
  - Simping
  - Sping
  - Ascend
  - Stream
  - Raped

Altitude Wireless Port Support
For additional information on the WLAN services, refer to Altitude 300 data sheet.

Switching Support
4 priority queues on WLAN interface
Multiple priority transmit queue
802.1p support
Per-VLAN broadcast key
Support for up to 256 VLANs

Security: Authentication Features
802.1X support including PEAP, EAP-TLS, EAP-TTLS, and EAP-MD5 to yield mutual authentication and dynamic, per-user, per-session encryption keys
Network login with SSL*
MAC address and standard 802.11 WEP authentication mechanisms
Username/password support
Ability to re-authenticate clients on timeout
Beacon frequency control, and ability to send beacon with or without SSID
Rogue access point detection
Guest mode support

Security: Encryption Features
AES and WPA
WPA1 based on 802.11i Draft 3 (WPA2 support via software upgrade)
Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits
TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC), broadcast key rotationper-VLAN broadcast key for VLAN isolation
- Authentication based on source MAC address
- Report authentication events using Syslog

Management
Integration with Radius Servers and MS active directory
Integration with HP Openview of CA Unicenter
MAC based VLAN
Policy management:
– User-based
– Time-based
– Location-based

Physical and Environmental
Summit 300-48 Dimensions
(H) 3.5 in x (W) 17.25 in (D) x 18.25 in (Including PSU handle)
(H) 8.9 cm (W) 43.87 cm x (D) 46.41 cm
Weight: 14 lbs (6.35 Kg) (1 PSU)
PSU Weight: 2 lbs (0.9 Kg)
Operating Temperature: 0 C to 40 C (32 F to 104 F)
Storage Temperature: -10 C to 70 C (14 F to 158 F)
Humidity: 10% to 95% non-condensing
Power: 100-240 VAC, 50-60 Hz, 3.0-6.0 A max.
Heat Dissipation: 631 BTU/hr (185 watts)

Regulatory
Safety
UL 1950 3rd Edition, listed
EN60950:1992/A1-4:1997 plus
ZB/ZC Deviations
IEC 950CB
Low Voltage Directive (LVD)
CSA 22.2#950-95
AS/NZS 3260
EN60825-1
FCC CFR 21

EMI/EMC
FCC Part 15 Class A
ICES-0003 A/C108.8-M1983 Class A
VCCI Class A
AS/NZS 3548
EN55022 Class A
CISPR 22 Class A
EN50082 -1:1997 include ENV 50204
EN55024:1998 includes IEC 61000-4-2, 3, 4, 5, 6, 8, 11
EN 61000-3-2, 3
CNS 13438 Class A

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Environmental

EN60068 to Extreme IEC68 schedule
Temperature monitoring: warnings
at > 60 degrees C and shutdown
at > 70 degrees C
Fan warnings when speed drops
<=50% of normal speed

Reliability

Minimum 93,350 hrs MTBF with 1 PSU
to Mil HDBK 217F Notice 1, Parts
Stress Method
Minimum 103,390 hrs MTBF with 2
PSU to Mil HDBK 217F Notice 1,
Parts Stress Method
Fan Redundancy, Resilient to up to
2 fan failures

Ordering Information

Part Number	Description
15431	Altitude 300 802.11a/b/g with dual radio, integrated 2.4 & 5 GHz antennas, AES, and 10/100BASE-TX Power over Ethernet port; includes mounting accessories
15432	Altitude 300 802.11a/b/g with dual radio, detachable RP-TNC (2.4 GHz) & RP-SMA (5 GHz) antenna connectors, AES, and 10/100BASE-TX Power over Ethernet port; includes mounting accessories
15434	Altitude 300 Translucent paintable plastic cover
15435	Altitude 300 Cool Grey paintable plastic cover
15436	Altitude 300 Cream paintable plastic cover
15401	Summit 300-48 Layer 2/Layer 3/WLAN Switch with 48 10/100BASE-TX Power over Ethernet ports, four 1000BASE-T and mini-GBIC-based 1000BASE-X slots (unpopulated), Unified Access ExtremeWare Layer 3 switching with WLAN switching, single 600W AC power supply. Includes power cord for US and Japan.
15402	Summit 300-48 600W AC power supply. Second power supply or spare.
15403	ExtremeWare Summit 300-48 Advanced Unified Access Software License Voucher - includes Mobile IP, Resiliency, Ethernet Automatic Protection Switching (EAPS) and BGP
15404	Summit 300-48 option slot cover. Spare only.
10051	Extreme Mini-GBIC, SFP, 1000Base-SX, LC Connector, for use with multi-mode fiber with distances up to 550 meters.
10052	Extreme Mini-GBIC, SFP, 1000Base-LX, LC Connector, for use with single mode fiber, distances up to 10 Km.
10053	Extreme Mini-GBIC, SFP, extra long distance SMF 70 Km/21 dB budget, LC Connector, for use with single mode fiber, distances up to 10 Km.

For more product information from Extreme Networks, please call 1.888.257.3000. 3585 Monroe Street, Santa Clara, CA 95051-1450 Phone 408.579.2800
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