DATA SHEET

ExtremeWireless™ 3965i/e Outdoor Access Point

Extends Ultra-High Performance and High-Density Outdoors

BENEFITS

BUSINESS ALIGNMENT

- Support for demanding voice/video/data applications to enhance mobile worker productivity and convenience
- Role-based grouping of users, devices, and applications
- To deliver priority, QoS, and security in accordance with business needs
- Seamless roaming across an entire multi-subnet
- Campus without the need for cumbersome client software
- Integrated management, security, and QoS features reduce operating cost and ensure a consistent user experience regardless of location

OPERATIONAL EFFICIENCY

- Centralized visibility and control from NetSight™ accelerates problem resolution, optimize network utilization, and automate management
- Adaptive architecture reduces complexity and optimizes information flow for each application
- Dynamic Radio Management when used for planning and monitoring ensures optimal spectrum coverage resulting in the best end-user quality of experience
- Flexible Client Access optimizes throughput for 802.11ac/n clients in today's mixed ac, n, and a/b/g client environments

Product Overview

The AP3965i/e is an ultra-high performance 802.11a/b/g/n/ac wave 2 outdoor access point that extends mobility beyond the walls. These outdoor access points are designed to operate in harsh environments such as warehouses, manufacturing plants, parks and stadiums. The AP3965 is powered via 802.3at power-over-Ethernet (PoE+).

The AP3965i/e is available in both internal and external antenna models. The AP3965i comes with an integrated eight port antenna array for ease of installation. The AP3965e requires professional installation and includes eight standard N-type antenna connectors with integrated lightning protection supporting both 2.4GHz and 5GHz band antennas.

The AP3965i/e is built on the latest Wi-Fi technology including 802.11ac wave2, dynamic radio management, and spectrum analysis with interference classification, beamforming, multi-user MIMO, self-forming and self-healing meshing, security, role-based authentication, authorization, and access control. The 4x4:4 platform is capable of delivering up to 2.5 Gbps over-the-air-performance and up to 90,000 packets per second on the wire port. Multiple antenna offerings (e.g., Omni, sector, and panel) for the AP3965e ensure that deployments can be optimized to meet any unique coverage or capacity needs.

Specifications

PRODUCT FEATURES	AP3935I/e
GENERAL	
High performance enterprise class AP	✓
Number of radios	2
MIMO implementation for high performance 11ac & 11n throughputs	4x4
Number of spatial streams	4
Number of simultaneous users (MU-MIMO)	3
Maximum Throughput 2.4GHz Radio	800 Mbps
Maximum Throughput 5GHz Radio	1.732 Gbps
Maximum Throughput per AP	2.532 Gbps
RFC2285 Wire/Wireless Forwarding Rate	90,000 pps
Number of SSIDs supported per radio/total	8/16
Simultaneous users per radio/total	240/480 Per AP
Simultaneous Voice calls(802.11b, G711, R>80)	12 or greater
Mode of operation	Semi-autonomous
Plug and play operation/Zero touch deployment	✓
Security and Standards	WPA, WPA2 (AES), 802.11i, 802.1x, IPSec, SSL, IKEv2, PKCS #10, X509 DER / PKCS #12
MULTIPLE OPERATING MODES	
Intelligent thin AP	Encryption, Security, QoS and RF management done on AP
Distributed and centralized data paths within same SSID	✓
Application based distributed and centralized data paths within same user/ device session	✓
Simultaneous RF monitoring and client services	✓
In-channel WIDS	✓
In-channel WIPS	✓
Dedicated multi-channel WIDS (Guardian mode)	✓
Dedicated multi-channel WIPS (Guardian mode)	✓
Dedicated multi-channel RF spectrum analysis and fingerprinting	✓
Locates devices and threats via RF triangulation	✓
Self-forming and self-healing meshing	✓
Remote access point	✓
Hardware-based, end-to-end data and control plane encryption	✓
Private and public cloud deployments	✓
SSL	✓
HYBRID OPERATION	
Security scanning and serve clients on same radio	✓
Security scanning and spectrum analysis on same radio	✓
Spectrum analysis and serve clients on same radio	✓
Multi-channel dedicated security scanning and spectrum analysis	✓
RADIO CHARACTERISTICS	
MAX RADIATED POWER	
Radio 1 (5GHz)	TBD
Radio 2 (2.4GHz)	TBD

** Actual available power would vary based on local regulatory requirement and actual channels used for operation*

Specifications (cont.)

PRODUCT FEATURES	AP3935I/e
MAX ANTENNA GAIN (INTEGRATED ANTENNA)	
Radio 1 (5GHz)	5 dBi (AP3965i)
Radio 2 (2.4GHz)	3 dBi (AP3965i)
ADAPTIVE RADIO MANAGEMENT	
Dynamic Channel Control	802.11h: DFS & TPC support (ETSI)
Efficient use of the spectrum with a multi-channel architecture	✓
Automatic transmit power and channel control	✓
Self-healing with coverage gap detection	✓
Band steering with multiple steering modes	✓
Spectrum load balancing of clients	✓
Airtime fairness	✓
Performance protection in congested RF environments	✓
Fast Transition Roaming (802.11k)	✓
Mitigates co-channel interference with coordinated access	✓
Mitigates adjacent channel interference with optimized receive sensitivity	✓
Efficient reuse of channels at shorter intervals	✓
Mitigates non 802.11 interference without dedicated radios	✓
Probe Suppression and client link monitoring	✓
Management Frame Protection (802.11w)	✓
Automatic discovery of networks by pre-authenticated devices (802.11u)	✓
Wireless Network Management (802.11v)	✓
QUALITY OF SERVICE	
Quality of Service (WMM, 802.11e)	✓
Power Save (U-APSD)	✓
Fast secure roaming and handover between APs (802.11r)	✓
Pre-Authentication (Pre-Auth)	✓
Opportunistic Key Caching (OKC)	✓
Bonjour/LLMNR/UPnP identification, containment and control	✓
Supports voice, video and data using the same SSID	✓
Prioritizes voice over data for both tagged and untagged traffic	✓
Rate limiting (rule and user-based)	✓
Rule and role based QoS processing	✓
MULTICAST RATE CONTROL	
Multicast to unicast Conversion	✓
Adaptable rate multicast	✓
Power save mode optimization for multicast	✓
WIRELESS SERVICES	
Media Access Protocol	CSMA/CA with ACK
Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps 802.11 02.11n Performance Table below 802.11ac: See 802.11ac Performance Table below Receiver Sensitivity 802.11a: • -92DdBm @ 6Mbps • -77DdBm @ 54Mbps 802.11g: • -91DdBm @ 6Mbps • -78DdBm @ 54Mbps 802.11n: See 802.11n Receiver Sensitivity Table below 802.11ac: See 802.11ac Receiver Sensitivity Table below

Specifications (cont.)

PRODUCT FEATURES	AP3935I/e
Frequency Bands	802.11ac/a/n: • 5.15 to 5.25 GHz (FCC/IC/ETSI) • 5.25 to 5.35 GHz (FCC/IC/ETSI)* • 5.47 to 5.725 GHz (FCC/IC/ETSI)* • 5.725 to 5.850 GHz (FCC/IC) 802.11b/g/n: • 2.400 to 2.4720 GHz (FCC/IC) • 2.400 to 2.4835 GHz (ETSI) *FCC/IC DFS certification in progress
Wireless Modulation	802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM with OFDM 802.11ac Packet Aggregation: A-MPDU, A-MSDU 802.11ac Very High-Throughput (VHT): VHT20/40/80 802.11ac Advanced Features: LDPC, STBC, Maximum Likelihood (ML) Detection 802.11n: BPSK, QPSK, 16QAM, 64QAM with OFDM 802.11n High-throughput (HT) support: HT 20/40 802.11n Packet aggregation: A-MPDU, A-MSDU 802.11n Advanced Features: LDPC, STBC and TxBF 802.11a: BPSK, QPSK, 16QAM, 64QAM with OFDM 802.11g: DSSS and OFDM 802.11b: DSSS
INTERFACES	
# 10/100/1000 Base T Ethernet autosensing link	2
MOUNTING	
Flat Wall Mounting (Included)	✓
ENVIRONMENTAL	
Environmental	Protection: IP67 / NEMA6 Operating: Temperature -30° C to +60° C (-22° F to + 158° F) Humidity 0%-95% (noncondensing) Storage: Temperature --40° C to +70° C (-40° F to +158° F) Transportation: Temperature -40° C to +70° C (-40° F to +158° F)
WIRELESS AND EMC	
Compliance	• FCC CFR 47 Part 15, Class B • ICES-003 Class B • FCC Subpart C 15.247 • FCC Subpart E 15.407 • RSS-210 • EN 301 893 • EN 300 328 • EN 301 489 1 & 17 • EN50385 • EN 55022 (CISPR 22) • EN 60601-1-2 • AS/NZS4268 + CISPR22
Safety	• IEC 60950-1 • IEC60950-22 • EN 60950-1 • UL 60950-1 • UL 60950-22 • CSA 22.2 No.60950-1-03 • CSA 2.2 No. 60950-22 • AS/NZS 60950.1
MECHANICAL	
Dimensions (Outer Diameter x Height)	9.5' x 8.23" x 2.36" - AP3965i 9.5" x 8.23" x 2.36"- AP3965e (including lightning protectors)
Weight	6.59 lb (2.99 kg) – AP3965e
Max power consumption	802.3at (30W)
Warranty	1 Year Hardware Replacement

Ordering Information

PRODUCT FEATURES	AP3935i/e
ACCESS POINTS	
31016	WS-AP3965i_FCC (US, Puerto Rico, Colombia) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight internal antenna array (Requires V10.01)
31017	WS-AP3965i-ROW (Verify country availability before ordering) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight internal antenna array (Requires V10.01)
31018	WS-AP3965e-FCC (US, Puerto Rico, Colombia) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight standard N connectors for external antenna array (Requires V10.01 or higher, and antennas must be ordered separately)
31019	WS-AP3965e-ROW (Verify country availability before ordering) Dual Radio 802.11ac/abgn, 4x4:4 MIMO outdoor access point with eight standard N connectors for external antenna array (Requires V10.01 or higher, and antennas must be ordered separately)
ANTENNAS (REQUIRED FOR AP3965e)	
30711	WS-AO-DQ05120N, Outdoor 4.9-6.1GHz 4 feed, 5dBi, 120 degree sector Antenna with Standard N-type plug
30712	WS-AO-5Q04060N ,Outdoor, 4.9-6.1GHz 4-feed, 4dBi, 60 degree sector antenna with standard N-type plug
30713	WS-AO-2Q0560N, Outdoor, 2.3-2.7GHz 4-feed, 5dBi, 60 degree sector antenna with standard N-type plug connector
30714	WS-AO-DE07025N, Outdoor 2.3-2.7Ghz, 8-feed, 6.5/5.5 dBi, 25 degree sector antenna with standard N-Type plug connector
30715	WS-AO-DE13025N, Outdoor 2.3-2.7Ghz, 8-feed, 13/11 dBi, 25 degree sector antenna with standard N-Type plug connector
30716	WS-AO-5Q05025N, Outdoor 5.15-5.875 GHz, 4-feed, 5 dBi, 25 degree sector antenna with standard N-Type plug connector
30717	WS-AO-5Q11025N, Outdoor 5.15-5.875 GHz, 4-feed, 11 dBi, 25 degree sector antenna with standard N-Type plug connector
30718	WS-AO-DE10055N, Outdoor, 2.4-2.5/5.15-5.875GHz, 8-feed, 10/6dBi, 55 degree panel antenna with standard N-type plug connector
30720	WS-AO-DE07100N, Outdoor, 2.4-2.5/5.15-5.875GHz, 8-feed, 7dBi, 100 degree panel antenna with standard N-type plug connector
30724	WS-AO-DQ04360N Outdoor, 2.4-2.5/5.15-5.875GHz, 4-feed 4dBi, Omni antenna with standard N-type plug connector
WS-AO-5D23009N	Outdoor, 5GHz, dual-polarization, 23 dBi, 9 deg, panel with two standard N-type plug connectors (not supported on 11n outdoor APs)
ACCESSORIES	
WS-CAB-6DBATN-SN	6dB attenuator with standard N-type connector
WS-CAB-10DBATN-SN	10dB attenuator with standard N-type connector
WS-CAB-NP-RPNP	RN type plug connector to connect existing antenna with RN jack connector to AP3965e. Only antennas of same type as certified with AP3965e shall be connected
WS-CAB-NP-RPNJ	RN type jack connector to connect existing antenna with RN plug connector to AP3865e. Only antennas of same type as certified with AP3865e shall be connected
WS-CAB-L200C20N	20 foot LMR200 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L400C20N	20 foot LMR400 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L400C06N	6 foot LMR400 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L400C50N	50 foot LMR400 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L400C75N	75 foot LMR400 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L600C25N	25 foot LMR600 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-L600C50N	50 foot LMR600 Cable With Standard N-type Jack and Plug Connectors
WS-CAB-NTERM	Standard N-type Plug Terminator
30514	WS-MBO-ART01 Articulating Mounting Bracket
MID-SPAN POE DEVICES	
PD-9001GO-ENT	Outdoor, Single port, 1 Gigabit 802.3at PoE Injector (30 W)
PD-9501GO-ENT	Outdoor, Single-Port, 1 Gigabit 802.at+ PoE Injector (60W)

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 products repaired or media replaced as soon as possible.

For full warranty terms and conditions please go to: support.extremenetworks.com

Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimization of 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.