

## 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

- NetSight provides centralized visibility and control for accelerated problem resolution, optimized network utilization and automated management for the wired/wireless network
- Adaptive architecture reduces complexity and optimizes information flow for each application
- Dynamic Radio Management ensures optimal AP coverage and maximizes the availability and quality of wireless service across the enterprise
- Flexible Client Access optimizes throughput for 802.11ac/n clients in today's mixed ac, n, and a/b/g client environments

### Security

- Authentication and authorization functions include role-based access control (using 802.1X, MAC, and captive portal) and authentication at the AP
- Wireless Intrusion Prevention (WIPS) functions provide continuous scanning, threat classification, rogue AP detection, and countermeasures against possible attacks
- Integration of security policies (NAC, IPS) across the wired/wireless network enables quick diagnosing and resolution of security threats
- Integration with Policy Manager across the wired/ wireless network dynamically controls user access at the wireless network point of entry

### Support and Service

- Industry-leading customer satisfaction and first call resolution rates
- Personalized services, including site surveys, network design, installation, and training



## AP3865e Outdoor Access Point

Extends 802.11ac ultra high-performance and Mobility Beyond Walls

### Product Overview

The AP3865 is a high-performance 802.11a/b/g/n/ac outdoor access point that extends wireless mobility beyond the brick-and-mortar. The outdoor access point is designed to operate in harsh environments such as warehouses, manufacturing plants, parks and stadiums. The AP3865e requires professional installation and includes six standard N-type antenna connectors with integrated lightning protection supporting both 2.4G and 5G band antennas. The AP3865e is powered via 802.3at power-over-Ethernet (PoE+).

The AP3865e supports the latest Wi-Fi technology and Identifi features including 802.11ac performance, dynamic radio management, spectrum analysis with interference classification and avoidance, self-forming and self-healing meshing, security, role-based authentication, authorization, and access control. The 3x3:3 platform delivers up to 1.75Gbps over-the-air-performance and up to 75,000 packets per second on the wire port. Multiple antenna offerings (e.g., omni, sector, and panel) ensure that AP3865e deployments can be optimized to meet any range, coverage or capacity requirement.

# Specifications

Product Features	AP3865e
<b>General</b>	
High performance enterprise class AP	√
Number of radios	2
MIMO implementation for high performance 11ac & 11n throughputs	3x3
Number of spatial streams	3
Maximum Throughput 2.4GHz Radio	450Mbps
Maximum Throughput 5GHz Radio	1.3Gbps
Maximum Throughput per AP	1.75Gbps
RFC2285 Wire/Wireless Forwarding Rate	75,000 pps
Number of SSIDs supported per radio/AP	8/16
Simultaneous users per AP	312
Simultaneous voice calls (802.11, 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, IKEv2, PKCS #10, X509 DER / PKCS #12
<b>Multiple Operating Modes</b>	
Clients serving access points	√
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 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	√
<b>Hybrid Operation</b>	
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	√
<b>Adaptive Radio Management</b>	
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	√
Mitigates co-channel interference with coordinated access	√

Product Features	AP3865e
<b>Adaptive Radio Management (cont.)</b>	
Mitigates adjacent channel interference with optimized receive sensitivity	✓
Efficient reuse of channels at shorter intervals	✓
Mitigates non 802.11 interference without dedicated radios	✓
-Support for Protection Management Frame 802.11w	✓
-Radio Resource Management (support for 802.11k)	✓
<b>QoS for Applications</b>	
Quality of Service (WMM, 802.11e)	✓
Power Save (U-APSD)	✓
Fast secure roaming and handover between APs	✓
-Support for 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 to unicast Conversion	✓
Adaptable rate multicast	✓
Power save mode optimization for multicast	✓
<b>Wireless Services</b>	
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 802.11n: See 802.11n Performance Table below 802.11ac: See 802.11ac Performance Table below  Receiver Sensitivity 802.11a: • -92dBm @ 6Mbps • -76dBm @ 54Mbps  802.11g: • -92dBm @ 6Mbps • -76dBm @ 54Mbps  802.11b: • -93dBm @ 1Mbps • -90dBm @ 11Mbps  802.11n: See 802.11n Receiver Sensitivity Table below 802.11ac: See 802.11ac Receiver Sensitivity Table below
Frequency Bands	802.11a/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 2.4835 GHz (FCC/IC/ETSI) *FCC/IC DFS certification in progress

Product Features	AP3865e
<b>Wireless Services (cont.)</b>	
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: HT20/40 802.11n 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
<b>Interfaces</b>	
# 10/100/1000 Base T Ethernet autosensing link	2
Active/active and active/passive with dynamic LAG support (LACP)	√
<b>Mounting</b>	
Wall and pole mounting bracket (standard)	√
<b>Environmental</b>	
Environmental	Operating: Temperature -40° C to +60° C (-40° F to +140° 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)  Protection: IP67, NEMA6
<b>Wireless and EMC</b>	
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 EN 62311 EN 55022 (CISPR 22) AS/NZS3548 + CISPR22
Safety	IEC 60950-1 EN 60950-1 UL 60950-1 CSA 22.2 No.60950-1-03 AS/NZS 60950.1
<b>Mechanical</b>	
Dimensions(Width x Height x Depth)	8.625" x 11" x 2.25" (219mm x 280mm x 57mm)
Weight	4.6lbs(2.1kg)
Max power consumption	802.3at
Maximum Conducted Power(dBm)	2.4GHz - 25.77*(dBm)
	5GHz - 27.8*(dBm)
Warranty	1 Year

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

## Ordering Information

Part Number	Description
<b>Access Points</b>	
WS-AP3865e	Dual Radio 802.11ac/a/b/g/n, 3x3:3, outdoor access point with six standard N jack connectors for external antennas (requires antennas to be ordered separately)
<b>Antennas (Required)</b>	
WS-AO-DT05120N	Outdoor, 2.3-2.7/4.9-6.1 GHz, Triple-feed, 5 dBi, 120 deg, sector with standard N-type plug connector
WS-AO-DS02360N3	Outdoor, 2.4-2.5/5.15-5.875 GHz, 2 dBi, omni baton with standard N-type plug connector (3-pack)
WS-AO-5D23009N	Outdoor, 5.15-5.875 GHz, Dual-polarization, 23 dBi, 9 deg, panel antenna with standard N-type plug connectors
	Use 10dB attenuator part WS-CAB-10DBATN-SN with this antenna for ETSI domain
WS-AO-DX13025N	Outdoor, 2.4-2.5/5.15-5.875 GHz, Six-feed, 12/11 dBi, 27/30 deg, panel with standard N-type plug connectors
	Use of this antenna is not allowed in ETSI domain
WS-AO-DX10055N	Outdoor, 2.4-2.5/5.15-5.875 GHz, Six-feed, 9/8 dBi, 55 deg, panel with standard N-type plug connectors
WS-AO-DX07025N	Outdoor, 2.4-2.5/5.15-5.875 GHz, six feed, 7dBi, 25 deg panel with standard N-type plug connectors
WS-AO-DX07180N	Outdoor, 2.4-2.5/5.15-5.875 GHz, Six-feed, 7 dBi, 180 deg, panel with standard N-type plug connectors
WS-AO-2DIPN3	Outdoor, 2.4 GHz, dipole, 3 pack
WS-AO-5DIPN3	Outdoor, 5 GHz, dipole, 3 pack
<b>Cables/Connectors</b>	
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 AP3865e. Only antennas of same type as certified with AP3865e 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
<b>Mid-Span PoE Devices</b>	
PD-9001GR-ENT	Indoor, single port 10/100/1000 E/N 802.3at PoE injector (30W)
PD-9001GO-ENT	Outdoor, single-port, 10/100/1000 E/N 802.3at PoE injector (30W)
PD-9501GO-ENT	Outdoor, single-port, 10/100/1000 E/N 802.3at PoE injector (60W)
PD-MBKOUT	Mounting bracket for outdoor injector

## 802.11ac Performance

### Data Rates (Mbps)

Descriptor	Data Streams	VHT20		VHT40		VHT80	
		Normal GI	Short GI	Normal GI	Short GI	Normal GI	Short GI
MCS0	1	6.5	7.2	13.5	15	29.3	32.5
MCS1	1	13	14.4	27	30	58.5	65.0
MCS2	1	19.5	21.7	40.5	45	87.8	97.5
MCS3	1	26	28.9	54	60	117.0	130.0
MCS4	1	39	43.3	81	90	175.5	195.0
MCS5	1	52	57.8	108	120	234.0	260.0
MCS6	1	58.5	65	121.5	135	263.3	292.5
MCS7	1	65	72.2	135	150	292.5	325.0
MCS8	1	78.0	86.7	162.0	180.0	351.0	390.0
MCS9	1	NA	NA	180.0	200.0	390.0	433.3
MCS0	2	13	14.4	27	30	58.5	65.0
MCS1	2	26	28.9	54	60	117.0	130.0
MCS2	2	39	43.3	81	90	175.5	195.0
MCS3	2	52	57.8	108	120	234.0	260.0
MCS4	2	78	86.7	162	180	351.0	390.0
MCS5	2	104	115.6	216	240	468.0	520.0
MCS6	2	117	130	243	270	526.5	585.0
MCS7	2	130	144.4	270	300	585.0	650.0
MCS8	2	156.0	173.3	324.0	360.0	702.0	780.0
MCS9	2	NA	NA	360.0	400.0	780.0	866.7
MCS0	3	19.5	21.7	40.5	45	87.8	97.5
MCS1	3	39	43.3	81	90	175.5	195.0
MCS2	3	58.5	65	121.5	135	263.3	292.5
MCS3	3	78	86.7	162	180	351.0	390.0
MCS4	3	117	130	243	270	526.5	585.0
MCS5	3	156	173.3	324	360	702.0	780.0
MCS6	3	175.5	195	364.5	405	NA	NA
MCS7	3	195	216.7	405	450	877.5	975.0
MCS8	3	234.0	260.0	486.0	540.0	1053.0	1170.0
MCS9	3	260.0	288.9	540.0	600.0	1170.0	1300.0

## 802.11n Performance

### Data Rates (Mbps)

2.4GHz/5GHz					
	Spatial Streams	HT20 Normal GI	HT20 Short GI	HT40 Normal GI	HT40 Short GI
MCS0	1	6.5	7.2	13.5	15
MCS1	1	13	14.4	27	30
MCS2	1	19.5	21.7	40.5	45
MCS3	1	26	28.9	54	60
MCS4	1	39	43.3	81	90
MCS5	1	52	57.8	108	120
MCS6	1	58.5	65	121.5	135
MCS7	1	65	72.2	135	150
MCS8	2	13	14.4	27	30
MCS9	2	26	28.9	54	60
MCS10	2	39	43.3	81	90
MCS11	2	52	57.8	108	120
MCS12	2	78	86.7	162	180
MCS13	2	104	115.6	216	240
MCS14	2	117	130	243	270
MCS15	2	130	144.4	270	300
MCS16	3	19.5	21.7	40.5	45
MCS17	3	39	43.3	81	90
MCS18	3	58.5	65	121.5	135
MCS19	3	78	86.7	162	180
MCS20	3	117	130	243	270
MCS21	3	156	173.3	324	360
MCS22	3	175.5	195	364.5	405
MCS23	3	195	216.7	405	450

## Receiver Sensitivity (dBm)

		2.4GHz	
Rate	Spatial Streams	HT20 (20MHz)	HT40 (40MHz)
MCS0	1	-91	-89
MCS1	1	-90	-88
MCS2	1	-88	-86
MCS3	1	-85	-83
MCS4	1	-83	-81
MCS5	1	-78	-76
MCS6	1	-76	-74
MCS7	1	-75	-73
MCS8	2	-89	-87
MCS9	2	-88	-86
MCS10	2	-86	-84
MCS11	2	-83	-81
MCS12	2	-81	-79
MCS13	2	-76	-74
MCS14	2	-74	-72
MCS15	2	-73	-71
MCS16	3	-87	-85
MCS17	3	-86	-84
MCS18	3	-84	-82
MCS19	3	-81	-79
MCS20	3	-79	-77
MCS21	3	-74	-72
MCS22	3	-72	-70
MCS23	3	-71	-69

5 GHz			
Rate	VHT20 (20MHz)	VHT40 (40MHz)	VHT80 (80MHz)
(MCS0, 1)	-92	-90	-87
(MCS1, 1)	-92	-89	-86
(MCS2, 1)	-90	-87	-84
(MCS3, 1)	-85	-82	-79
(MCS4, 1)	-82	-79	-77
(MCS5, 1)	-78	-75	-72
(MCS6, 1)	-76	-74	-71
(MCS7, 1)	-75	-72	-69
(MCS8, 1)	-70	-67	-65
(MCS9, 1)	NA	-66	-64
(MCS0, 2)	-90	-88	-85
(MCS1, 2)	-90	-86	-83
(MCS2, 2)	-88	-84	-81
(MCS3, 2)	-83	-80	-77
(MCS4, 2)	-80	-77	-75
(MCS5, 2)	-76	-73	-70
(MCS6, 2)	-74	-72	-69
(MCS7, 2)	-73	-70	-67
(MCS8, 2)	-68	-65	-63
(MCS9, 2)	-66	-64	-62
(MCS0, 3)	-88	-86	-83
(MCS1, 3)	-88	-84	-81
(MCS2, 3)	-86	-82	-79
(MCS3, 3)	-81	-78	-75
(MCS4, 3)	-78	-75	-73
(MCS5, 3)	-74	-71	-68
(MCS6, 3)	-72	-70	-67
(MCS7, 3)	-71	-68	-65
(MCS8, 3)	-66	-63	-61
(MCS9, 3)	-64	-62	-60

## 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: <http://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.



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