Extreme™
Customer-Driven Networking

Data Sheet

Benefits

Business Alignment

- Extends secure connectivity to Internet of Things (IoT) sensors for Smart Buildings while reducing risks from weak or insecure sensors
- 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

- Reduces installations and operational costs by providing Wi-Fi and surveillance services from a single platform
- Centralized visibility and control 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

Flexible Management Options

- On premise, with hardware or virtual ExtremeWireless™ Appliance
- ExtremeCloud™ Cloud-Managed Networking Platform

ExtremeWireless™ 3916ic Indoor Camera Access Point

Converged Surveillance and Mobility Services

Product Overview

The AP3916 delivers Wi-Fi services and video surveillance through a high-performance platform, reducing installation, cabling and power plant costs. Built to complement existing surveillance solutions, the AP3916 reduces costs by providing Wi-Fi connectivity and video surveillance through a single Ethernet uplink. This feature rich 802.11ac Wave 2 and 802.11abgn indoor access point delivers enterprise-grade performance and security services for K-12, universities, hospitals, clinics, government buildings and enterprise campuses. Although simple to install, the AP3916 offers a range of connectivity options including 2.4G and 5G Wi-Fi, as well as an integrated BLE/802.15.4 (support for Thread and other higher level protocols) radio for extended connectivity to Internet of Things (IoT) sensors and devices.

The built-in video camera provides a wide view angle of the service area and includes infrared visibility as well as a one-way microphone to capture images and sound for security or monitoring services. The two mega pixel video feed can be forwarded to any Open Network Video Interface Forum (ONVIF) compliant Digital Video Recorder (DVR) for viewing and archival.

The AP3916 is built using the latest in technology, including 802.11ac Wave 2, dynamic radio management, spectrum analysis with interference classification, beamforming, multi-user MIMO, self-forming and self-healing meshing, security, role-based authentication, authorization, and access control to ensure consistent and secure connectivity to users and sensors. The 2×2:2 platform is capable of delivering up to 1.2 Gbps over-the-air-performance and up to 50,000 packets per second on the wired port with a unique flow-based architecture that provides consistent performance, even when enforcing extensive Layer 7 (application-based) service requirements.

ExtremeCloud Management

The AP3916 is cloud-ready out-of-the-box and supports future secure connectivity to ExtremeCloud™, a single pane of glass for cloud managing both the wired and wireless components of your network.

Zero touch provisioning that significantly reduces deployment time. Select models enabled for use with ExtremeCloud.

See the ExtremeCloud datasheet for details and ordering part numbers.

Specifications

Product Features	AP3916ic
General	
Fully-Featured Enterprise Class AP	✓
Number of Wi-Fi Radios	2
MIMO Implementation for High-Performance 11ac & 11n Throughputs	2x2
Number of Spatial Streams	2
Number of Simultaneous Users (MU-MIMO)	2
Maximum Throughput 2.4GHz Radio	300 Mbps
Maximum Throughput 5GHz Radio	867 Mbps
Maximum Throughput Per AP	1.166 Gbps
RFC2285 Wire/Wireless Forwarding Rate	50,000 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)	30 or less
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, SSL
Internet of Things (IoT) Radio	Dual mode selectable (2.4 GHz with Co-Existence): Bluetooth Low Energy (BTLE) 4.1 - Single and Dual mode operation (Classic and Low Power Profiles 802.15.4 -2011)
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	✓
BYOD / Device Fingerprinting Visibility	✓
Application / Layer 7 Visibility and Control	✓
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	✓
Policy Enforcement for Wired Clients (L2-L7 Access Control, QoS, Rate Limiting, and VLAN Containment)	✓
Hybrid Operation	
Security Scanning and Serve Clients On Same Radio	✓
Security Scanning and Spectrum Analysis On Same Radio	✓

Specifications (cont.)

Product Features	AP3916ic
Spectrum Analysis and Serve Clients On Same Radio	✓
Multi-Channel Dedicated Security Scanning and Spectrum Analysis	✓
Radio Characteristics	
Max Antenna Gain (Integrated Antenna)	
Radio 1 (5GHz)	6 dB
Radio 2 (2.4GHz)	6 dB
Adaptive Radio Management	
Dynamic Channel Control	802.11d (ETSI), 802.11h DFS and 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)	✓
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/LImnr/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 802.11n: 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	AP3916ic
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 Mbps autosense Ethernet port	1
Mounting	
Integrated Wall Mounting	✓
Single/Dual Gang (Junction) Box Installation	✓
Environmental	
Environmental	**Operating:** Temperature 0° C to +40 ° C (+32° F to +104° F) Humidity 0%-95% (noncondensing) **Storage:** Temperature -50° C to +70° C (-58° F to +158° F) **Transportation:** Temperature -50° C to +70° C (-58° 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 • EN 60950-1 • UL 60950-1 • CSA 22.2 No.60950-1-03 • AS/NZS 60950.1
MECHANICAL	
Dimensions (Outer Diameter x Height)	166 mm (Diameter) x 111 mm Height (6.5" D x 4.4" H)
Weight	1.6 Lb (0.7 Kg)
Power Consumption (RMS)	802.3af (See below chart)
Warranty	1 Year Hardware Warranty

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

Power Consumption

	Camera with Night Vision – On	Camera with Night Vision – Off
Idle	4.4W	5.5W
Typical	7.4W	8.5W
Max	11.9W	13.3W

Camera Specifications

Product Features	Ap3916ic
Camera	
Discovery	Open Network Video Interface Forum (ONVIF) Profile S 2.4
Orientation	Manual: 360 Horizontal, 90 Vertical
Image Sensor	1/2.9 Format 2 Mega Pixel CMOS Image Sensor
Lens	2.8 mm fixed Lens, F.2.0
Field of View (Diameter)	112 degrees
IR LED	24 x LED Up to 20m
Maximum Illumination	Color (IR-OFF): 0.01 LUX/F=2.0 B/W (IR-ON): 0 LUX / F=2.0
IRC	Mechanical IR Cut
Shutter	Electronic Rolling Shutter
Shutter Time	1/2.5 second to 1/10,0000 second
Video	
Format	H.264 (Default) / MJPEG
Resolution	1920 x 1080 (2 MP) 1280 x 720 (720p) 720 x480 640 x 352 488 x 256
Frame Rate	Up to 30 fps (Default)
Bit Rate	Constant Bit Rate (CBR): 128K, 256K, 512K, 768K, 1M, 1.5M, 2M, 3M, 4M, 5M, 6M Variable Bit Rate (VBR): Medium, Standard, Good, Detail, Excellent
Video	
Audio	Microphone (One-Way Audio) Enable/Disable
Encoding	G.711 u-Law, G711 a-law

Ordering Information

Product Features	AP3916ic
Access Points	
31034	WS-AP3916ic-FCC (US, Puerto Rico, Colombia) Dual Radio 802.11ac/abgn, Wave 2, 2x2:2 MIMO indoor access point with four internal antenna array, integrated BLE/802.15.4 radio and integrated video camera. (Requires ExtremeWireless V10.31 or higher)
31035	WS-AP3916ic-ROW (Verify country availability before ordering) Dual Radio 802.11ac/abgn, Wave 2, 2x2:2 MIMO indoor access point with four internal antenna array, integrated BLE/802.15.4 radio and integrated video camera. (Requires ExtremeWireless V10.31 or higher)
Mid-Span POE Devices	
PD-9001GR-ENT	Single Port, 1 Gigabit 802.3at PoE Midspan
Brackets	
30516	WS-MBI-WALL04 Indoor wall mounting bracket

Data Rates

2.4 MHz Radio (802.11n)

Description	Data Streams	HT20		HT40	
		Normal GI	Short GI	Normal GI	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

5.0 GHz Radio (802.11n/ac)

Description	Data Streams	HT20		HT40		HT80	
		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
MCS2	1	19.5	21.7	40.5	45	87.8	97.5
MCS3	1	26	28.9	54	60	117	130
MCS4	1	39	43.3	81	90	175.5	195
MCS5	1	52	57.8	108	120	234	260
MCS6	1	58.5	65	121.5	135	263.3	292.5
MCS7	1	65	72.2	135	150	292.5	325
MCS8	1	78	86.7	162	180	351	390
MCS9	1	N/A	N/A	180	200	390	433.3
MCS0	2	13	14.4	27	30	58.5	65
MCS1	2	26	28.9	54	60	117	130
MCS2	2	39	43.3	81	90	175.5	195
MCS3	2	52	57.8	108	120	234	260
MCS4	2	78	86.7	162	180	351	390
MCS5	2	104	115.6	216	240	468	520
MCS6	2	117	130	243	270	526.5	585
MCS7	2	130	144.4	270	300	585	650
MCS8	2	156	173.3	324	360	702	780
MCS9	2	N/A	N/A	360	400	780	866.7

Receiver Sensitivity

2.4 GHz Wi-Fi Radio

	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. Frame (1000-byte PDUs) Error Rate <10% at room Temp. 25° C (802.11g: IEEE Std 802.11g/D8.2-Apr 2003 Part 11 Paragraph 19.5.1)	
2.4GHz, 11g		6Mbps	-91 dBm
		9Mbps	-91 dBm
		12Mbps	-90 dBm
		18Mbps	-88 dBm
		24Mbps	-86 dBm
		36Mbps	-83 dBm
		48Mbps	-82 dBm
		54Mbps	-78 dBm

	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. Frame (1000-byte PDUs) Error Rate <10% at room Temp. 25° C (should comply to 802.11n: IEEE P802.11n-Sep 2009 Table 20.22)		
2.4GHz, 11n		Rate	20 MHz (dBm)	40 MHz (dBm)
		(MCS0)	-92	-91
		(MCS1)	-91	-89
		(MCS2)	-90	-88
		(MCS3)	-87	-85
		(MCS4)	-84	-82
		(MCS5)	-80	-78
		(MCS6)	-77	-75
		(MCS7)	-75	-73
		(MCS8)	-89	-88
		(MCS9)	-88	-86
		(MCS10)	-87	-85
		(MCS11)	-84	-82
		(MCS12)	-81	-79
		(MCS13)	-77	-75
		(MCS14)	-74	-72
		(MCS15)	-72	-70

Receiver Sensitivity (cont.)

5.0 GHz Wi-Fi Radio

	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. Frame (1000-byte PDUs) Error Rate <10% at room Temp. 25° C (should comply to 802.11ac)			
		Rate	20 MHz (dBm)	40 MHz (dBm)	80 MHz (dBm)
5GHz, 11ac		(MCS0, 1)	-91	-89	-87
		(MCS1, 1)	-90	-87	-84
		(MCS2, 1)	-88	-85	-81
		(MCS3, 1)	-84	-81	-78
		(MCS4, 1)	-83	-80	-75
		(MCS5, 1)	-77	-75	-72
		(MCS6, 1)	-74	-72	-69
		(MCS7, 1)	-71	-69	-66
		(MCS8, 1)	-68	-66	-63
		(MCS9, 1)	N/A	-63	-60
		(MCS0, 2)	-88	-86	-84
		(MCS1, 2)	-87	-84	-81
		(MCS2, 2)	-85	-82	-78
		(MCS3, 2)	-81	-78	-75
		(MCS4, 2)	-77	-75	-72
		(MCS5, 2)	-74	-72	-69
		(MCS6, 2)	-71	-69	-66
		(MCS7, 2)	-68	-66	-63
		(MCS8, 2)	-65	-63	-60
		(MCS9, 2)	N/A	-60	-57

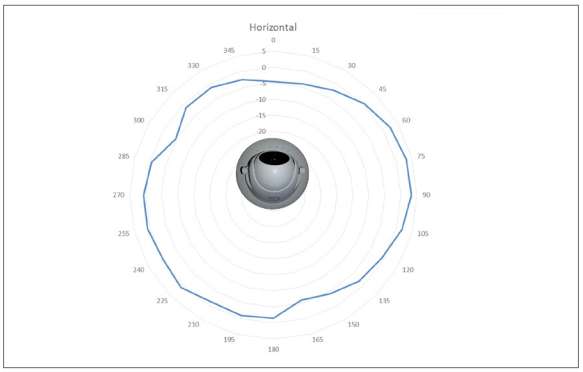
	Receiver Sensitivity at Antenna Connector	Typical Sensitivity (dBm) at each RF chain. Frame (1000-byte PDUs) Error Rate <10% at room Temp. 25° C (should comply to 802.11a: IEEE Std 802.11a-1999 Part 11 Paragraph 17.3.10.1)	
5GHz, 11a		6Mbps	-90
		9Mbps	-90
		12Mbps	-89
		18Mbps	-87
		24Mbps	-85
		36Mbps	-82
		48Mbps	-79
		54Mbps	-77

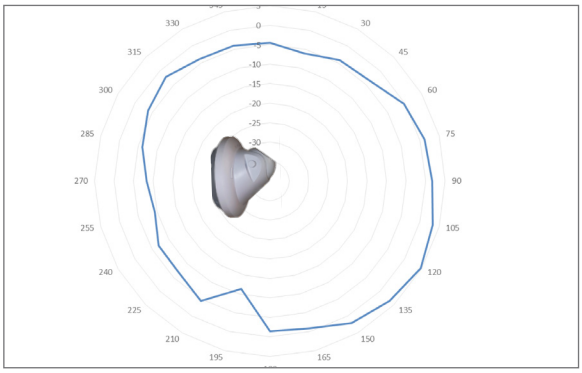
IoT Radio Sensitivity

Typical Receiver Sensitivity	dBm
BlueTooth Low Energy	-90
802.15 4	-100

3916ic Antenna Radiation Patterns – 2.4GHz

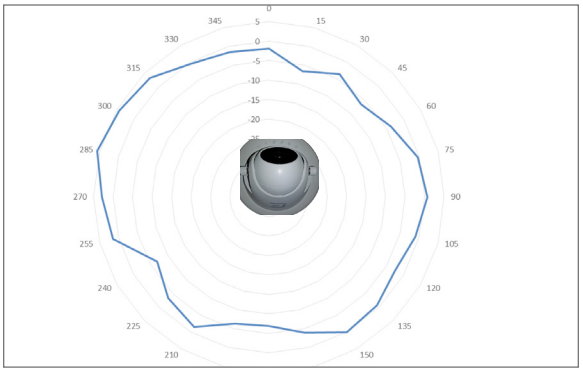
Gain: 6 dB

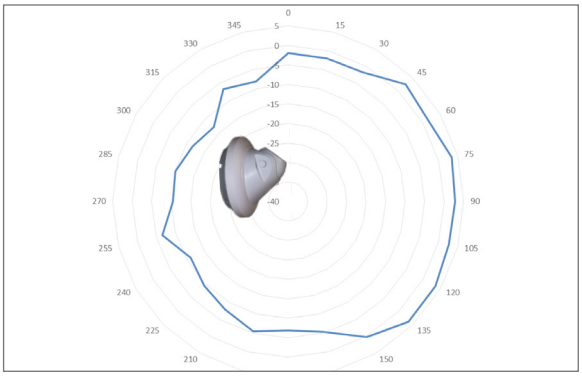




3916ic Antenna Radiation Patterns – 5.0GHz

Gain: 6 dB





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.

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Extreme™ Customer-Driven Networking

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