WING 5-ENABLED RUGGED OUTDOOR MESH ACCESS POINT

AP 8163 802.11n OUTDOOR ACCESS POINT

RUGGED DESIGN DELIVERS NEXT GENERATION HIGH PERFORMANCE WI-FI IN DEMANDING OUTDOOR ENVIRONMENTS

Break through your walls and extend your wireless LAN (WLAN) outdoors with the AP 8163. This rugged access point is purpose built inside and outside to enable the easy extension of robust wireless connectivity to workers in outdoor spaces. On the outside is a housing designed to handle virtually any weather condition. On the inside, three radios give you the power and flexibility to handle today's bandwidth-heavy applications and secure your data — without purchasing and managing an additional layer of equipment. Each of the two 802.11n radios can support either the 2.4 GHz or 5 GHz band, providing the flexibility to segment traffic as needed to maximize network and application performance. The third band-unlocked radio can be used to help increase security and network uptime as either a dedicated sensor for a Wireless Intrusion Prevention System (WIPS), enabling around the clock rogue detection — or as a Scan Ahead radio that can find clean channels and eliminate network outages due to radar interference in the 5 GHz band. And with high-powered radios, you'll experience greater capacity and better network performance with fewer access points, effectively reducing the cost of your wireless LAN.

With the AP 8163, whether your workers are viewing technical schematics, placing a video call to get on-the-spot assistance with a task or accessing an inventory application, you'll have the bandwidth you need to continually exceed their performance expectations — with the integrated around-the-clock monitoring required to keep your network safe.

INNOVATIVE ADVANCED FEATURES FOR OUTDOOR OPERATION

Outdoor rated IP67 die-cast aluminum enclosure
Designed to withstand wind, rain, and extreme temperatures.

Band-unlocked tri-band design
Increases security without increasing costs by enabling 24x7 dual band Wireless IPS sensing on both 2.4 GHz and 5 GHz, with concurrent 802.11a/b/g/n client access and mesh.

3-spatial stream 3X3 MIMO
Delivers maximum throughput to support virtually any enterprise application, including voice and HD video.

Backhaul detection
If an AP loses the backhaul connection, the AP self forms and self heals into a mesh router in the network, eliminating any disruption in wireless connectivity.

Extended radio range
The radio range can be increased more than a mile by chaining the timing of radio parameters.

MeshConnex™ on both data radios
Creating a Mesh network on both radios allows automatic failover for superior uptime and survivability.

Patented Scan Ahead technology
Enables the third radio to constantly scan ahead for channels that are free and clear of radar interference. In the event the 5 GHz data radio is hit by radar, the channel can then be changed in milliseconds, eliminating any network outage due to radar interference.

Load balancing, pre-emptive roaming and rate scaling
Increases reliability and resilience of the wireless network to support mission critical applications.

Advanced WiNG 5 operating system
The WiNG 5 OS provides the advanced brainpower required to create the "fully network aware" WLAN, allowing every piece of infrastructure in your wireless network to work together to route every transmission as efficiently as possible.

SUPERIOR CAPACITY

With three spatial streams, the two radios designed to carry client traffic deliver data rates of up to 450 Mbps per radio. So whether your workers are using latency sensitive applications such as voice or video, or bandwidth-intensive applications such as HD video, you can be confident your WLAN can handle the traffic — and provide the optimum user experience.

SUPERIOR AVAILABILITY

While the AP 8163 can be adopted by a Motorola Solutions wireless controller for remote control and management, it can also function as a standalone access point. These features work together to keep workers connected, even if an adopted AP 8163 loses its connection to the wireless controller due to a wired network or T1/E1 line backhaul problem.

ADVANCED WING 5 OPERATING SYSTEM DELIVERS SUPERIOR PERFORMANCE

WiNG 5 distributes intelligence and control to every piece of infrastructure in your WLAN — the wireless controllers as well as all access points, including the AP 8163. Now, all AP 8163 access points work in concert with all WLAN infrastructure to determine the fastest and most efficient routing of every transmission, based on factors such as user, location, application and available wired and wireless resources. And since traffic no longer needs to travel to a central controller, the load on the wired network is dramatically reduced, virtually eliminating the typical bottlenecks and chokepoints in a centralized WLAN.

GAP-FREE SECURITY

The AP 8163 secures all your wireless transmissions, ensuring compliance with government and industry regulations, such as PCI in retail and HIPAA in healthcare. Your network is protected every second of every day with comprehensive integrated security features that include layer 2-7 stateful packet filtering firewall, AAA RADIUS services, a VPN gateway and location-based access control. In addition, one of the radios can serve as a dedicated WIPS sensor for around-the-clock rogue detection, protecting the network edge — without requiring standalone hardware and additional power or Ethernet cabling.

ELIMINATE RADAR INTERFERENCE WITH SCAN AHEAD RADIO

Since your AP 8163 access points will be installed outdoors, they are vulnerable to interference from certain radar systems. With our patented Scan Ahead technology, one radio can be utilized to scan ahead for a channel that is free of radar signals and automatically change channels if radar interference is detected, protecting network performance.

REDUCE WLAN COST AND COMPLEXITY WITH ADVANCED MESH NETWORKING

With over 200 patents granted in mesh networking, Motorola Solutions is the industry leader in outdoor mesh networks. Our robust mesh networks eliminate the need to install fiber and wires between buildings, on campus grounds and in business parks and large outdoor areas, reducing the cost and complexity of your WLAN. Our unique routing engine, MeshConnex™ combines with a key mesh enhancement called Opportunistic Radio Link Adaption (ORLA) to ensure the highest possible data rate in challenging outdoor environments — at all times. And with data rates of 450 Mbps at the mesh layer, you get a high capacity network capable of serving high bandwidth applications, such as video.

ELIMINATE RF INTERFERENCE

Even when the network is fully operational, RF interference and unbalanced wireless network loads can threaten network performance. With SMART RF, your WLAN can automatically and intelligently adapt to these types of dynamic changes in the RF environment. The AP 8163 can sense potential interference from Wi-Fi and non Wi-Fi sources — including faulty antennas, dynamic dead spots and neighboring access point failures — and automatically adjust channels and power as needed to prevent performance degradation and protect latency sensitive applications, such as VoIP.

THE MOTOROLA ADVANTAGE: SUPPORT SERVICES BRING OUR EXPERTISE RIGHT TO YOUR DOOR

A respected leader in enterprise mobility, Motorola provides services that allow you to benefit from the experience we've gained from working around the globe with many of the world's leading companies in practically every vertical market. Our family of services can help you get and keep your WLAN up and running at peak performance by providing the assistance you need at every phase of network lifecycle — from planning and implementation to post-deployment everyday support. Not only can we help you tailor your network to meet your specific needs, we can also help you reduce risk, lower your capital investment and reduce operational costs.

TECHNICAL SPECIFICATIONS

802.11n CAPABILITIES

- 3X3 MIMO with 3 spatial streams
- 20 and 40 MHz channels
- 450 Mbps data rates per radio
- Packet aggregation (AMSDU, AMPDU)
- Reduced Interface Spacing
- 802.11 DFS
- MIMO Power Save (Static and Dynamic)
- Advanced forward error correction coding: STBC, LDPC
- Additional radio can support either 24x7 WIPS sensing and spectrum analysis or Dynamic Frequency Selection (DFS) Scan Ahead
- Smart antenna features with transmit beamforming

PHYSICAL CHARACTERISTICS

Dimensions	9.0 in. L x 10.0 in. W x 2.6 in. H 22.8 cm L x 25.4 cm W x 6.6 cm H
Weight	5.6 lbs/2.54 kg
Housing	Outdoor IP67 rated, die-cast aluminum, corrosion resistant enclosure, salt, fog, rust ASTM B117
LEDs activity indication	2 top mounted LEDs
Uplink	2 ports (GE1, GE2) Auto-sensing 10/100/1000Base-T Ethernet; 802.3at on GE1 LAN port
Antenna connectors	8 N-type ports
Console port	Outdoor rated RJ45 console port
Multi-band security sensor	Outdoor 24x7 integrated Wireless Intrusion Prevention System (WIPS)

USER ENVIRONMENT

Operating Temp.	-22° F to 140° F/-30° C to 60° C
Storage Temp.	-40° F to 185° F/-40° C to 85° C
Operating humidity	5 to 95% RH non-condensing
IP Sealing	IP67
Operating Altitude	8,000 ft. at 54 °F/12 °C
Storage Altitude	30,000 ft. at 82 °F/28 °C
Wind Rating	150 mph
Electrostatic discharge	15kV air, 8kV contact
Operation Shock	IEC60721-3-4, Class 4M3, MIL STD 810F
Vibration	IEC60721-3-4, Class 4M3

POWER SPECIFICATIONS

Operating voltage	36-57VDC
Operating current	625mA at 48V in 802.3at mode
Integrated PoE	802.3at

NETWORKING SPECIFICATIONS

Layer 2 and Layer 3	Layer 3 routing, 802.1q, DynDNS, DHCP server/client, BOOTP client, PPPoE, and LLDP
Security	Stateful Firewall, IP filtering, NAT, 802.1x, 802.11i, WPA2, WPA Triple-Methodology Rogue Detection: 24x7 dual-band WIPS sensing, MU-assisted, on-board IDS and secure guest access (hotspot)
Quality of Service (QoS)	WMM, WMM-UAPSD, 802.1p, Diffserv and TOS

RADIO SPECIFICATIONS

Wireless medium	Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM) and Spatial Multiplexing (MIMO)
Network standards	IEEE 802.11a/b/g/n, 802.11d and 802.11i WPA2, WMM and WMM-UAPSD
Data rates supported	*802.11b/g:* 1,2,5.5,11,6,9,12,18,24,36,48 *54 Mbps 802.11a*: 6,9,12,18,24,36,48 *54 Mbps 802.11n:* MCS 0-23 up to 450 Mbps
Operating channels	2.4 GHz band: channel 1 through channel 13 5.2 GHz band: channel 36 through channel 165 * Channel availability depends on local regulatory restriction
Maximum available transmit power per chain (conducted)	2.4GHz: 23dBm 5.2GHz: 20dBm
Maximum available transmit power per AP (composite, 0dBi antenna)	2.4 GHz: 27.7dBm 5.2 GHz: 24.7dBm
Antenna configuration	3x3 MIMO (transmit/receive on all three antennas) and green mode (dynamical antenna selection)
Transmit power adjustment	1dB increment from 0dBm to max
Operating frequencies	2412 to 2472 MHz, 5180 to 5825 MHz

REGULATORY

Safety certifications	UL / cUL 60950-1, IEC / EN60950-1, RoHS
Radio approvals	FCC (USA), Industry Canada, CE (Europe), Australia

ACCESSORIES

Mounting Bracket (KT-147407-01); Extension Mounting Kit (KT-150173-01); IP66 Outdoor Rated 802.3 at Power Injector; external antenna options (see WLAN Antenna Guide for external antenna options)

WARRANTY

One (1) year on AP8163; 30 days on accessories; 90 days on software

SERVICES

Service from the Start with Comprehensive Coverage; Service from the Start Onsite System Support; WLAN Software Support

The AP 8163 — providing users in outdoor environments with dependable, wireless connections — all at a lower cost. For more information about the modular AP 8163, please visit www.motorolasolutions.com/wlan

2400 MHZ BAND: CONDUCTED RECEIVER SENSITIVITY

(Antenna element not included; typical at antenna housing connector)

Rate/MCS	Mode	Sensitivity (dBm)
1	Legacy	-101
2	Legacy	-95
6	Legacy	-93
11	Legacy	-90
6	Legacy	-94
9	Legacy	-94
12	Legacy	-94
18	Legacy	-93
24	Legacy	-90
36	Legacy	-86
48	Legacy	-82
54	Legacy	-81
MCS0	HT20	-95
MCS1	HT20	-94
MCS2	HT20	-93
MCS3	HT20	-88
MCS4	HT20	-85
MCS5	HT20	-81
MCS6	HT20	-79
MCS7	HT20	-77
MCS8	HT20	-94
MCS9	HT20	-91
MCS10	HT20	-89
MCS11	HT20	-85
MCS12	HT20	-83
MCS13	HT20	-77
MCS14	HT20	-75
MCS15	HT20	-74
MCS16	HT20	-93
MCS17	HT20	-90
MCS18	HT20	-87
MCS19	HT20	-84
MCS20	HT20	-80
MCS21	HT20	-78
MCS22	HT20	-75
MCS23	HT20	-73
MCS0	HT40	-90
MCS1	HT40	-90
MCS2	HT40	-89
MCS3	HT40	-85
MCS4	HT40	-81
MCS5	HT40	-78
MCS6	HT40	-76
MCS7	HT40	-74
MCS8	HT40	-90
MCS9	HT40	-88
MCS10	HT40	-86
MCS11	HT40	-82
MCS12	HT40	-79
MCS13	HT40	-74
MCS14	HT40	-72
MCS15	HT40	-70
MCS16	HT40	-89
MCS17	HT40	-86
MCS18	HT40	-81
MCS19	HT40	-79
MCS20	HT40	-77
MCS21	HT40	-73
MCS22	HT40	-72
MCS23	HT40	-70

5200 MHZ BAND: CONDUCTED RECEIVER SENSITIVITY

(Antenna element not included; typical at antenna housing connector)

Rate/MCS	Mode	Sensitivity (dBm)
6	Legacy	-96
9	Legacy	-96
12	Legacy	-95
18	Legacy	-94
24	Legacy	-89
36	Legacy	-86
48	Legacy	-82
54	Legacy	-81
MCS0	HT20	-96
MCS1	HT20	-95
MCS2	HT20	-93
MCS3	HT20	-88
MCS4	HT20	-85
MCS5	HT20	-81
MCS6	HT20	-79
MCS7	HT20	-78
MCS8	HT20	-94
MCS9	HT20	-91
MCS10	HT20	-88
MCS11	HT20	-85
MCS12	HT20	-82
MCS13	HT20	-78
MCS14	HT20	-76
MCS15	HT20	-75
MCS16	HT20	-93
MCS17	HT20	-90
MCS18	HT20	-87
MCS19	HT20	-84
MCS20	HT20	-81
MCS21	HT20	-77
MCS22	HT20	-75
MCS23	HT20	-74
MCS0	HT40	-92
MCS1	HT40	-90
MCS2	HT40	-93
MCS3	HT40	-84
MCS4	HT40	-81
MCS5	HT40	-78
MCS6	HT40	-76
MCS7	HT40	-75
MCS8	HT40	-90
MCS9	HT40	-87
MCS10	HT40	-85
MCS11	HT40	-82
MCS12	HT40	-79
MCS13	HT40	-74
MCS14	HT40	-72
MCS15	HT40	-70
MCS16	HT40	-89
MCS17	HT40	-86
MCS18	HT40	-84
MCS19	HT40	-81
MCS20	HT40	-78
MCS21	HT40	-73
MCS22	HT40	-71
MCS23	HT40	-69

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