AP 5181 Access Point

Enterprise-class 802.11a/b/g outdoor access point

FEATURES

NEMA 4X-modified, IP56 Weatherproof housing
Equipment designed to withstand wind, rain, and extreme temperatures

Class 1 Div 2 compliant version
Engineered for use in hazardous locations, such as oil and gas plants and more

Extended temperature range
Operates in temperatures from -30° C to 55° C (-22° F to 131° F)

Mesh-capable
Self-assembling, self-healing nodes automatically establish wireless links between APs; install nodes wherever there is power – no need to install cable or fiber

Dual-radio, dual-band design; 802.11a/b/g in 2.4/5 GHz bands
Simultaneous support of 802.11a/b/g; works with any standards-based IEEE WLAN device

Rugged enterprise-class access point designed for harsh environments

Motorola's AP 5181 Access Point, specifically designed for outdoor use, delivers enterprise-class wireless networking in harsh environments. In addition to a NEMA 4X-modified housing, severe-weather features include integrated lightning arrestors, surge protectors, extreme temperature range operation and an array of antenna and power accessories. The self-assembling, self-healing mesh capability supports Wi-Fi multimedia (WMM) extensions to ensure quality of service (QoS) while cost-effectively extending corporate networks beyond and between buildings — with no need to install additional Ethernet cable or fiber. With integrated router, firewall, DHCP, AAA and hotspot services, the AP 5181 offers a superior outdoor WLAN solution.

Extend the reach of your corporate network — cost-effectively

When used as either an access port or a mesh node, the AP 5181 can operate wirelessly, even in harsh conditions. Outdoor applications don't mean sacrificing security or manageability — support for today's standards- based security protocols helps ensure enterprise-level network protection, while a wide variety of administration options provides simple, yet powerful management tools. Because the AP 5181 operates wirelessly, all of this can be implemented outdoors without the added cost of installing network cable or fiber.

Cost-effective safe extension of the corporate network in hazardous locations

The AP 5181 offers the certifications required for safe operation in the hazardous environments commonly found in the petrochemical, oil and gas, aerospace and utilities industries. The AP 5181 provides the real-time wireless voice and data connection required to help workers involved in inspecting and servicing mission critical infrastructure improve productivity and reduce errors. A real time connection to plant machinery — such as sensors and metering devices that report temperature, humidity, pressure readouts and more — helps improve process control, optimizing operations and reducing costs. The ability to enable video in these challenges environments helps improve the safety of personnel and critical infrastructure. And the dual radio and mesh capabilities enable the creation of a point-to-point bridge as well as complex multi-node, multi-link networks — ideal for extending wireless voice and data services to remote power plants and more.

Mesh networking creates a flexible, easily-managed network

Using its mesh capability, the dual-radio AP 5181 can connect to other access points for data backhaul while providing network access to local users. Enabling an array of applications, from simple point-to-point bridges connecting two wired networks to complex multi-node, multi-link networks, this feature offers a simple way to extend the network to outdoor or remote locations. The self-assembling

Integrated router, firewall and DHCP server
No need to install extra hardware; easy to scale, upgrade and maintain

AAA server and hotspot gateway
Integrated services for authentication and public access management

Wi-Fi Multimedia (WMM) quality of service (QoS) and voice prioritization
Superior performance for demanding mission-critical applications, including voice and video

Adaptive Switch Assisted Mesh
Can associate with a wireless switch to enable central management in the NOC, and in the event of loss of connectivity, resumes functionality as a standalone access point for local bridging of mesh traffic and continuity of local network connectivity

and self-healing aspects of a mesh network make the network flexible and easy to manage. This, combined with the straightforward configuration interface, makes deploying and maintaining a secure wireless network of access points almost effortless.

Engineered to withstand the elements
Because the AP 5181 was specifically designed for outdoor use in harsh conditions, it can withstand wind, rain and extreme temperatures. It comes standard with integrated lightning arrestors and surge protection. The optional protective heavy weather mounting kit is designed to protect it from windblown debris at velocities of up to 130 mph, while the surge-protected power tap kit converts high voltage on light poles to low voltage to run the AP. In fact, Motorola offers everything required for a full outdoor AP solution, including a host of outdoor dual-band antennas and outstanding support.

Adaptive Switch Assisted Mesh
The AP 5181 supports an adaptive mesh mode of operation where the mesh AP's can be centrally configured from the wireless switch. Local bridging of mesh traffic allows the mesh network to remain fully operational even if connectivity to the wireless switch is lost.

Backed by world-class service
Motorola covers every aspect of the mobility solution — from network design to ongoing operations — providing unsurpassed breadth and depth of
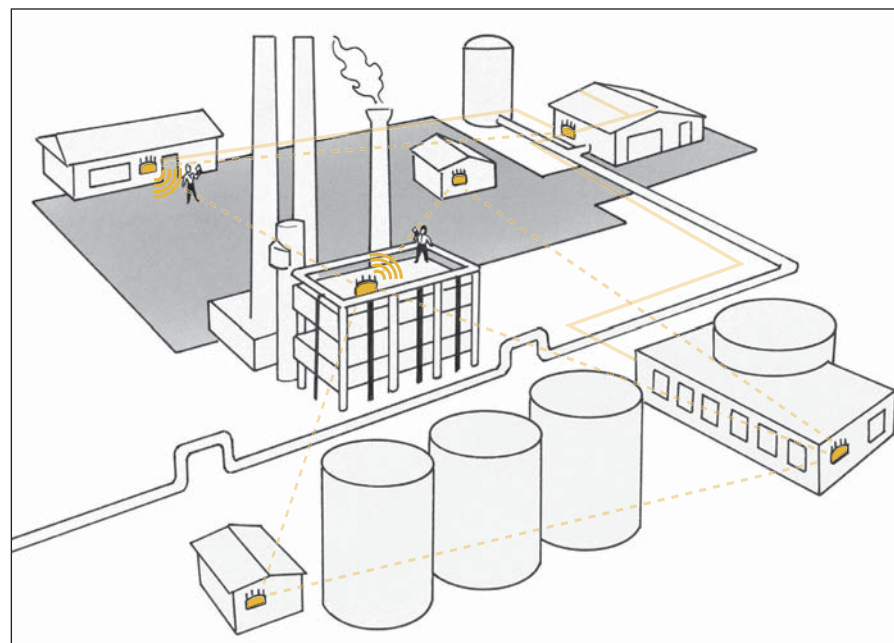
coverage to ensure all of your services and support needs are met. Professional planning, assessment and implementation services ensure that your mobility solution is designed to deliver maximum benefits. And our responsive Customer Services ensure that your solution continues to operate seamlessly and efficiently, and with maximum uptime — reducing your total cost of ownership and improving your return on investment.

Wireless IPS Sensor
The AP 5181 integrates AirDefense sensor firmware allowing customers to deploy AP 5181's with one radio configured for WLAN coverage and the second radio configured as an AirDefense sensor for 24x7 compliance monitoring, rogue detection and termination, and troubleshooting. Dedicating a radio for AirDefense sensor functionality gives the highest level of security as compared to other IPS solutions that share the same radio for WLAN coverage and IPS on a time sliced basis. The integrated AirDefense sensor also eliminates the need for dedicated sensor hardware and associated cabling thereby reducing the overall deployment cost.

For more information about the AP 5181, please visit us on the web at motorola.com/AP518 or access our global contact directory at motorola.com/enterprise/contactus

Mesh in a refinery environment

Mesh technology provides a convenient, flexible, scalable and cost-effective means to extend the corporate network — indoors and out — to areas that are typically expensive and hard to cable, including warehouses, shipping yards, processing plants, distribution centers and more.

AP 5181 ACCESS POINT
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AP 5181 Specifications

Physical Characteristics

Dimensions:	12 in. L x 8.2 in. W x 3.55 in. H/ 305 mm L x 210 mm W x 89 mm H
Weight:	5.50lbs/2.50kg

Housing:
  AP 5181-13040-WWR
  AP 5181-1304C-WR
	
	Die cast aluminum alloy; NEMA 4X; IP66
	Die cast aluminum alloy; IP66

Available Mounting Configurations:	Pole and wall mounting kit; Protective heavy weather mounting kit; Light pole power transformer kit
LEDs:	4 back-mounted LEDs, indicating radio activity, power, adoption and errors
Uplink:	2 ports (WAN, LAN) Auto-sensing 10/100Base-T Ethernet (No WAN port on AP 5181-1304C-WR)

User Environment

Operating Temperature:	-22°F to 131°F/-30°C to 55°C
Storage Temperature:	-40°F to 185°F/-40°C to 85°C
Operating Humidity:	5 to 95% RH non-condensing
Operating Altitude:	8,000 ft./2438m @ 82°F/28°C
Storage Altitude:	15,000 ft./4572m @ 53°F/12°C
Electrostatic Discharge:	IEEE 61000-4-2, 20kV air, 8kV contact
Weather rating:	IP56 weather-tight, NEMA 4X (See Housing)
Wind survivability:	>170 mph, 148 knots (without antenna)
Wind loading (165 mph):	<60 lbs, 267 Newtons (without antenna)
Shock & vibration:	MIL-STD-810F method 514 procedure 1
Transportation/Cargo:	ASTM D775-80 D4169 level 3

Power Specifications

Operating Voltage:	48V DC
Operating Current:	280mA
Integrated Power-Over-Ethernet Support:	802.3af mid-span on LAN Port (AP 5181-13040-WWR only) Available only on AP 5181-13040-WWR

Radio Specifications

Wireless Medium:	Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM)
Network Standards:	802.11a, 802.11b, 802.11g, 802.3
Data Rates Supported:	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps
Operating Channels:	Chan 36-165 (5180 − 5825 MHz); Chan 1-13 (2412-2472 MHz) Actual operating frequencies depend on regulatory rules and certification agency

Operating Bands:	**FCC**	**EU**
	2.400 - 2.4835 GHz	2.400 - 2.4835 GHz
	5.150 - 5.250 GHz[1]	5.150 - 5.250 GHz[1]
[1] Indoor use only	5.725 - 5.850 GHz	

Receiver Sensitivity:	Radio .11a (dBm) 10% PER for 1,000 bytes IEEE 802.11a sect 17.3.10.1 (MIN} & 17.3.10.4 (MAX)	6 Mbps 9 Mbps 12 Mbps 18 Mbps 24 Mbps 36 Mbps 48 Mbps 54 Mbps	-91 -89 -87 -83 -81 -78 -74 -73
	Radio .11g (dBm) @ 10% PER for 1,000 bytes IEEE 802.11g sect 19.5.1 (MIN) & 19.5.3 (MAX)	6 Mbps 9 Mbps 12 Mbps 18 Mbps 24 Mbps 36 Mbps 48 Mbps 54 Mbps	-89 -88 -85 -82 -80 -77 -72 -70
	Radio .11g (dBm @ 8% PER for 1,024 bytes	11 Mbps 5.5 Mbps 2 Mbps 1 Mbps	-84 -88 -90 -94
Available Transmit Power Settings:	4-20 dBm		
Antenna Protection:	Transient IEEE 61000-4-4, level 4, EFT; Surge IEEE 61000-4-5 Class 5, 1.2x50uS & 8x20uS Waveform		

Hazardous Safety Rating

Class 1, Div 2 (Groups A, B, C and D)

Regulatory

Standards Compliance:	802.11a/b/g, 802.11i, WPA2, WMM, UAPSD
Product Certifications:	UL / cUL 60950-1, IEC / EN60950-1
Radio Approvals:	FCC (USA), Industry Canada, CE (Europe)

AP 5181 Part Numbers and Product Descriptions

Part Number	*Description*
AP 5181-13040-WWR	AP 5181 802.11a+g
KT-5181-HW-01R	AP 5181 Heavy Weather Kit
KT-5181-WP-01R	AP 5181 Wall/Pole Mounting Kit
AP-PSBIAS-5181-01R	48V Transformer and Power Surge Protector (AP 5181-13040-WWR only)
AP 5181-1304C-WR	AP 5181 802.11a+g Dual Radio Outdoor AP - Class 1 Div 2 Certified
AP-PSBIAS-5181-C-R	C1D2 48V Transformer & Surge Protector (AP 5181-1304C-WR only)

A Complete Outdoor Access Point

AP 5181 Dual Radio AP
AP 5181-13040-WWR

Heavy Weather Kit
KT-5181-HW-01R

48V Transformer and Power Surge Protector
AP-PSBIAS-5181-01R

Not Shown: Wall Pole and Mounting Kit (KT-5181-WP-01R) and Outdoor Antennas