

AWK-4131A Series

Outdoor industrial Wi-Fi 4 (802.11n) wireless AP/bridge/clients



Features and Benefits

- IEEE 802.11n Wi-Fi 4 AP/bridge/client
- Selectable dual-band Wi-Fi with data rates up to 300 Mbps
- 2x2 MIMO technology to improve multi-stream data transmission and reception
- 5 GHz DFS channel support to avoid wireless interference
- IP68-rated weatherproof housing designed for outdoor applications and -40 to 75°C wide operating temperature range
- Power and antenna port isolation for enhanced ESD/surge protection and durability in extreme conditions

Certifications



Introduction

The AWK-4131A Series is a range of 3-in-1 industrial wireless AP/bridge/clients engineered for exceptional reliability in the most demanding outdoor environments. The IP68-rated weatherproof enclosure and integrated power and antenna isolation provide maximum protection against water, dust, and electrical surges. Combined, these features make the AWK-4131A Series the ideal choice for building stable Wi-Fi networks in demanding applications such as mining, oil and gas, and intelligent transportation systems.

With support for IEEE 802.11n and data rates up to 300 Mbps, the AWK-4131A Series can function as an AP, bridge, or client. The robust design ensures continuous connectivity and minimizes maintenance in challenging field conditions, providing a truly resilient solution for outdoor wireless infrastructure.

Tailored Industrial Wireless Technology

- AP-agnostic seamless roaming with client-based Turbo Roaming¹ for sub-150 ms roaming recovery times between APs (in Client mode)
- 2x2 MIMO technology for improved multi-stream data transmission and reception
- DFS channel support for a wider range of 5 GHz channels to avoid interference from existing wireless infrastructure
- Dedicated MXview Wireless network management software with dynamic topology view, interactive roaming history playback, and detailed device information and performance indicator charts

Industrial Compliance and Certifications

- Compliant with EN 18031-1 to ensure both EU regulatory alignment and enhanced protection against cyberthreats

Specifications

WLAN Interface

WLAN Standards	2.4 GHz: 802.11n with 64 QAM support, 20/40 MHz 5 GHz: 802.11n with 64 QAM support, 20/40 MHz WMM for QoS
Frequency Band for US (20 MHz operating channels)	AWK-4131A-US models only: 2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ² 5.745 to 5.825 GHz (5 channels)
Frequency Band for EU (20 MHz operating channels)	AWK-4131A-EU models only:

1. The Turbo Roaming recovery time indicated herein is an average of test results documented, in optimized conditions, across APs configured with interference-free 20-MHz RF channels, WPA2-PSK security, and default Turbo Roaming parameters. The clients are configured with 3-channel roaming at 100 Kbps traffic load. Other conditions may also impact roaming performance. For more information about Turbo Roaming parameter settings, refer to the product manual.

2. DFS (Dynamic Frequency Selection) channel support: In AP mode, when a radar signal is detected, the device will automatically switch to another channel. However, according to regulations, after switching channels, a 60-second availability check period is required before starting the service.

	2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ³ 5.500 to 5.700 GHz (11 channels) ³																								
Frequency Band for JP (20 MHz operating channels)	AWK-4131A-JP models only: 2.412 to 2.484 GHz (14 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.240 GHz (4 channels) ³ 5.500 to 5.700 GHz (11 channels) ³																								
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2-Personal																								
Wireless Roaming	Turbo Roaming ⁴																								
Transmission Rate	2.4 GHz: Up to 144.4 Mbps 5 GHz: Up to 300 Mbps																								
Transmitter Power for 802.11a (Dual Chain)	23±1.5 dBm @ 6 to 24 Mbps 21±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 18±1.5 dBm @ 54 Mbps																								
Transmitter Power for 802.11n (5 GHz, Dual Chain)	23±1.5 dBm @ MCS0/8 20 MHz 18±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 18±1.5 dBm @ MCS7/15 40 MHz																								
Transmitter Power for 802.11b (Dual Chain)	26±1.5 dBm @ 1 Mbps 26±1.5 dBm @ 2 Mbps 26±1.5 dBm @ 5.5 Mbps 25±1.5 dBm @ 11 Mbps																								
Transmitter Power for 802.11g (Dual Chain)	23±1.5 dBm @ 6 to 24 Mbps 22±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 19±1.5 dBm @ 54 Mbps																								
Transmitter Power for 802.11n (2.4 GHz, Dual Chain)	23±1.5 dBm @ MCS0/8 20 MHz 17±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 17±1.5 dBm @ MCS7/15 40 MHz																								
Transmitter Power	<table><tr><th></th><th>US</th><th>EU</th><th>JP</th></tr><tr><td>2.4 GHz</td><td>26 dBm</td><td>18 dBm</td><td>18 dBm</td></tr><tr><td>5 GHz (UNII-1)</td><td>23 dBm</td><td>21 dBm</td><td>21 dBm</td></tr><tr><td>5 GHz (UNII-2)</td><td>23 dBm</td><td>21 dBm</td><td>21 dBm</td></tr><tr><td>5 GHz (UNII-2e)</td><td>23 dBm</td><td>23 dBm</td><td>23 dBm</td></tr><tr><td>5 GHz (UNII-3)</td><td>23 dBm</td><td>–</td><td>–</td></tr></table> <p>Note: Based on regional regulations, the maximum transmission power allowed on the UNII bands is restricted in the firmware, as indicated above.</p>		US	EU	JP	2.4 GHz	26 dBm	18 dBm	18 dBm	5 GHz (UNII-1)	23 dBm	21 dBm	21 dBm	5 GHz (UNII-2)	23 dBm	21 dBm	21 dBm	5 GHz (UNII-2e)	23 dBm	23 dBm	23 dBm	5 GHz (UNII-3)	23 dBm	–	–
	US	EU	JP																						
2.4 GHz	26 dBm	18 dBm	18 dBm																						
5 GHz (UNII-1)	23 dBm	21 dBm	21 dBm																						
5 GHz (UNII-2)	23 dBm	21 dBm	21 dBm																						
5 GHz (UNII-2e)	23 dBm	23 dBm	23 dBm																						
5 GHz (UNII-3)	23 dBm	–	–																						
Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -90 @ 6 Mbps Typ. -88 @ 9 Mbps Typ. -88 @ 12 Mbps Typ. -85 @ 18 Mbps Typ. -81 @ 24 Mbps Typ. -78 @ 36 Mbps																								

- DFS (Dynamic Frequency Selection) channel support: In AP mode, when a radar signal is detected, the device will automatically switch to another channel. However, according to regulations, after switching channels, a 60-second availability check period is required before starting the service.
- The Turbo Roaming recovery time indicated herein is an average of test results documented, in optimized conditions, across APs configured with interference-free 20-MHz RF channels, WPA2-PSK security, and default Turbo Roaming parameters. The clients are configured with 3-channel roaming at 100 Kbps traffic load. Other conditions may also impact roaming performance. For more information about Turbo Roaming parameter settings, refer to the product manual.

	Typ. -74 @ 48 Mbps Typ. -72 @ 54 Mbps Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications.
Receiver Sensitivity for 802.11n (5 GHz)	Typ. -69 dBm @ MCS7 20 MHz Typ. -71 dBm @ MCS15 20 MHz Typ. -63 dBm @ MCS7 40 MHz Typ. -68 dBm @ MCS15 40 MHz Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications.
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -93 dBm @ 1 Mbps Typ. -93 dBm @ 2 Mbps Typ. -93 dBm @ 5.5 Mbps Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -88 dBm @ 6 Mbps Typ. -86 dBm @ 9 Mbps Typ. -85 dBm @ 12 Mbps Typ. -85 dBm @ 18 Mbps Typ. -85 dBm @ 24 Mbps Typ. -82 dBm @ 36 Mbps Typ. -78 dBm @ 48 Mbps Typ. -74 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	Typ. -70 dBm @ MCS7 20 MHz Typ. -69 dBm @ MCS15 20 MHz Typ. -67 dBm @ MCS7 40 MHz Typ. -67 dBm @ MCS15 40 MHz
WLAN Operation Mode	Access point Client Client-Router Master Slave Sniffer
Antenna	External, 3/6 dBi Omni-directional
Antenna Connectors	2 x N-type female
Ethernet Interface	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3at for PoE IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging
PoE Ports (10/100/1000BaseT(X), RJ45 connector)	1

Ethernet Software Features

Management	DHCP Server/Client DNS HTTP IPv4 LLDP Proxy ARP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN Wireless Search Utility MXconfig MXview One MXview Wireless Turbo Roaming Analyzer
Routing	Static Route NAT Port forwarding
Redundancy Protocols	RSTP STP
Security	HTTPS/SSL RADIUS SSH
Time Management	SNTP Client
Firewall	
Filter	ICMP MAC address IP protocol Port-based
Serial Interface	
Console Port	RS-232 8-pin RJ45
LED Interface	
LED Indicators	PWR, FAULT, STATE, WLAN, LAN
Input/Output Interface	
Alarm Contact Channels	Relay output with current carrying capacity of 1 A @ 24 VDC
Buttons	Reset button
Digital Inputs	+13 to +30 V for state 1 +3 to -30 V for state 0 Max. input current: 8 mA
Physical Characteristics	
Housing	Metal
IP Rating	IP68
Dimensions	224 x 147.7 x 66.5 mm (8.82 x 5.82 x 2.62 in)

Weight	1,400 g (3.09 lb)
Installation	Wall mounting (standard) DIN-rail mounting (optional) Pole mounting (optional)

Power Parameters

Input Current	0.64 A @ 12 VDC, 0.16 A @ 48 VDC
Input Voltage	12 to 48 VDC Redundant dual inputs 48 VDC Power over Ethernet
Power Connector	M12 A-coded 5-pin male connector
Power Consumption	7.68 W (max.)
Reverse Polarity Protection	Supported

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Radio	EN 300 328 EN 301 489-1/17 EN 301 893 FCC ID SLE-WAPN008 ANATEL MIC NCC RCM SRRC WPC KC
Safety	EN 62368-1 UL 60950-1
Cybersecurity	EN 18031-1
Vibration	IEC 60068-2-6

MTBF

Time	440,764 hrs
Standards	Telcordia Standard SR-332

Warranty

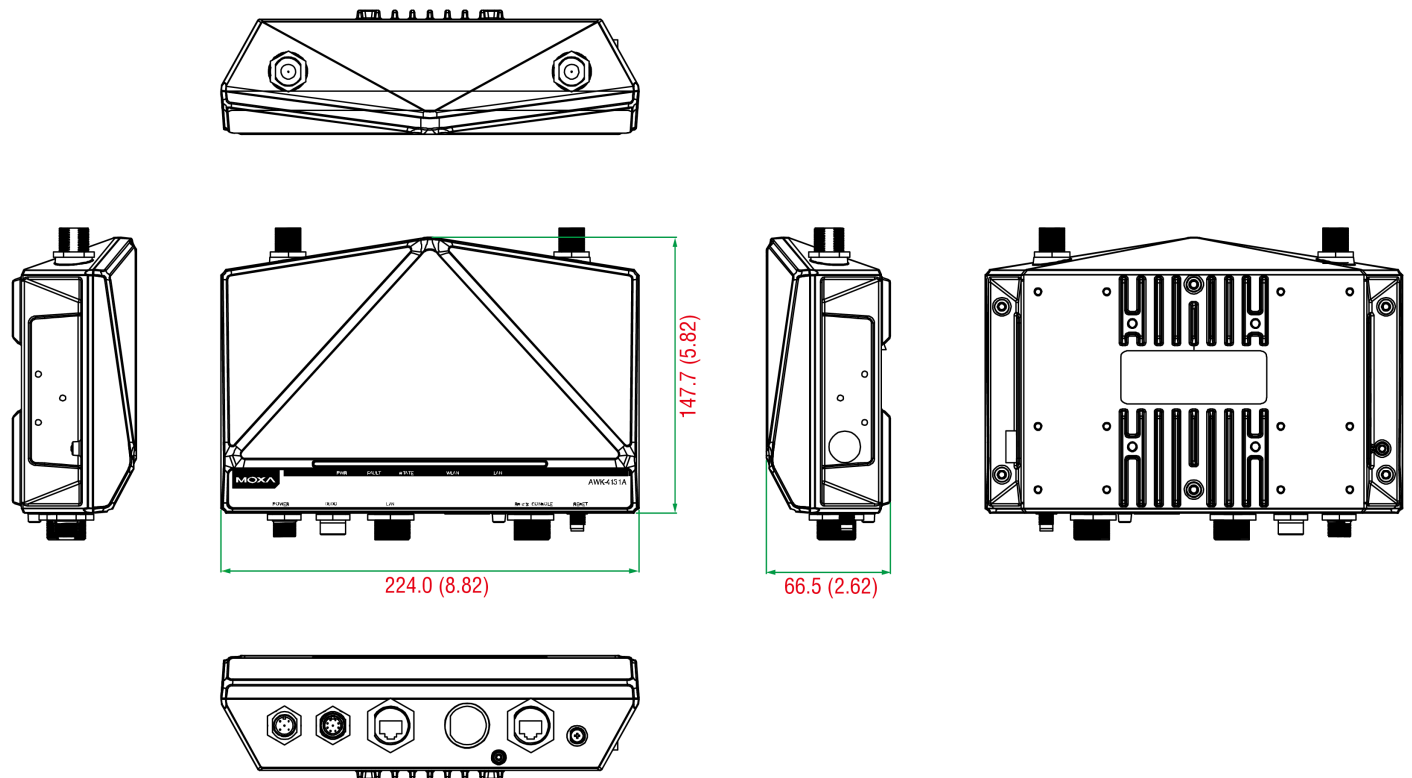
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x AWK-4131A Series wireless AP/bridge/client
Installation Kit	1 x cap, female, metal, for M12 port 1 x cap, metal, for RJ45 port 1 x field-installable power plug 1 x field-installable RJ45 plug 1 x stick, transparent plastic, for field-installable plug 2 x wall-mounting kit
Antenna	2 x 2.4/5 GHz antenna
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Side View

Front, Top, and Rear Views

Side View

Bottom View

Ordering Information

Model Name	Band	Standards	Operating Temp.
AWK-4131A-EU-T	EU	802.11a/b/g/n	-40 to 75°C
AWK-4131A-JP-T	JP	802.11a/b/g/n	-40 to 75°C
AWK-4131A-US-T	US	802.11a/b/g/n	-40 to 75°C

Accessories (sold separately)

Antennas

ANT-WDB-ONF-0709	7 dBi at 2.4 GHz or 9 dBi at 5 GHz, N-type (female), dual-band, omnidirectional antenna
ANT-WDB-ANM-0306	3 dBi at 2.4 GHz or 6 dBi at 5 GHz, N-type (male), omnidirectional antenna

ANT-WDB-ONM-0707	07 dBi at 2.4 GHz and 07 dBi at 5 GHz, N-type (male), dual-band omnidirectional antenna
ANT-WDB-ANM-0502	5 dBi at 2.4 GHz or 2 dBi at 5 GHz, N-type (male), omnidirectional antenna
ANT-WDB-ARM-02	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male) omnidirectional rubber-duck antenna
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-WDB-PNF-1011	10 dBi at 2.4 GHz and 11 dBi at 5 GHz, N-type (female), dual-band directional antenna
MAT-WDB-CA-RM-2-0205	2.4/5 GHz, ceiling antenna, 2/5 dBi, MIMO 2x2, RP-SMA-type (male)
MAT-WDB-DA-RM-2-0203-1m	2.4/5 GHz, desktop antenna, 2/3 dBi, MIMO 2x2, RP-SMA-type (male), 1 m cable
MAT-WDB-PA-NF-2-0708	2.4/5 GHz, panel antenna, 7/8 dBi, MIMO 2x2, N-type (female)
ANT-WSB5-PNF-16	16 dBi at 5 GHz, N-type (female), single-band directional antenna
ANT-WSB-PNF-12-02	12 dBi at 2.4 GHz, N-type (female), single-band directional antenna
ANT-WSB-AHRM-05-1.5m	5 dBi at 2.4 GHz, RP-SMA (male), omnidirectional/dipole antenna, 1.5 m cable

Wireless Antenna Cables

A-CRF-NMNM-LL4-300	N-type (male) to N-type (male) LMR-400 Lite cable, 3 m
A-CRF-NMNM-LL4-600	N-type (male) to N-type (male) LMR-400 Lite cable, 6 m
A-CRF-NMNM-LL4-900	N-type (male) to N-type (male) LMR-400 Lite cable, 9 m

Connectors

M12A-5P-IP68-SCREW	Field-installable A-coded M12 screw-in 5-pin (female) connector, IP68
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Wireless AP Connector Cables

M12A-8PFF-IP68	Field-installation A-coded M12 screw-in 8-pin connector, female connector female PIN
M12A-8PMM-IP68	Field-installation A-coded screw-in Gigabit Ethernet connector, 8-pin male M12 connector, IP68-rated
A-PLG-WPRJ	Field-installation RJ-type plug

Wireless Connector Caps

A-CAP-N-M	A-CAP-N-M
A-CAP-WPRJ45-MC	Metal cap with chain for RJ45 connector

Surge Arrestors

A-SA-NFNF-02	0 to 6 GHz, N-type (female) to N-type (female) surge arrester
A-SA-NMNF-02	0 to 6 GHz, N-type (male) to N-type (female) surge arrester

Wireless Adapters

A-ADP-RJ458P-DB9F-ABC01	DB9 female to RJ45 connector for the ABC-01 Series
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Wireless Terminating Resistors

A-TRM-50-NM	50-ohm termination resistor with N-type male connector
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Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws
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Wireless AP Mounting Kits

WK-55	Wall mounting kit with 2 plates (55 x 34.5 x 2.5 mm) and 6 screws
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