

AWK-4131A 系列

戶外工業級 Wi-Fi 4 (802.11n) 無線 AP/橋接器/用戶端



特色與優點

- IEEE 802.11n Wi-Fi 4 AP/橋接器/用戶端
- 可選雙頻 Wi-Fi，資料傳輸速率最高可達 300 Mbps
- 採用 2x2 MIMO 技術，可提升多串流資料的傳輸及接收能力
- 支援 5 GHz DFS 頻道，避免無線干擾
- IP68 等級防風雨外殼專為戶外應用以及 -40 至 75°C 的寬廣操作溫度範圍所設計
- 具備電源與天線埠隔離功能，可增強 ESD/突波保護，並提升極端環境下的耐用性

認證



簡介

AWK-4131A 系列是一系列三合一工業無線 AP/橋接器/用戶端，專為極其嚴苛的戶外環境提供卓越的可靠性所設計。其具備 IP68 防護等級的防護外殼，以及整合式電源與天線隔離設計，可針對水分、灰塵與電力突波提供最大程度的保護。綜合而言，這些功能使 AWK-4131A 系列成為在採礦、石油與天然氣以及智慧交通系統等嚴苛應用中，構建穩定 Wi-Fi 網路的理想選擇。

AWK-4131A 系列支援 IEEE 802.11n，資料傳輸速率高達 300 Mbps，可作為 AP、橋接器或用戶端運作。其堅固的設計確保了連線的連續性，並在嚴苛的現場環境中將維護需求降至最低，為戶外無線基礎設施提供真正具備韌性的解決方案。

客製化工業級無線網路技術

- 基於用戶端的 Turbo Roaming 快速漫遊，支援不限 AP 類型實現無縫漫遊，¹ 在 AP 間的漫遊復原時間小於 150 毫秒（用戶端模式）
- 採用 2x2 MIMO 技術，可提升多串流資料的傳輸及接收能力
- DFS 頻道支援提供更廣泛的 5 GHz 頻道範圍，避免現有無線基礎設施的干擾
- 專用的 MXview 無線網路管理軟體，具備動態拓撲視圖、互動式漫遊記錄播放功能，以及詳細的裝置資訊與效能指標圖表

工業合規性與認證

- 符合 EN 18031-1 標準，確保符合歐盟法規並增強對網路威脅的防護能力

規格

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. 此處所指的 Turbo Roaming 快速漫遊復原時間是在最佳狀態下，配置無干擾 20 MHz RF 頻道、WPA2-PSK 安全性和預設的 Turbo Roaming 快速漫遊參數，所得到的測試結果平均值。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能會影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。
2. 支援 DFS（動態頻率選擇）頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。

	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> Note: Based on regional regulations, the maximum transmission power allowed on the UNII bands is restricted in the firmware, as indicated above.					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 Typ. -74 @ 48 Mbps																											

3. 支援 DFS (動態頻率選擇) 頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。
4. 此處所指出的快速漫遊復原時間是在最佳化條件下記錄的平均測試結果，其中包含無干擾的 20 MHz RF 頻道、WPA2-PSK 安全性和預設快速漫遊參數。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能會影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。

	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
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Serial Interface

Console Port	RS-232 8-pin RJ45
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LED Interface

LED Indicators	PWR, FAULT, STATE, WLAN, LAN
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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

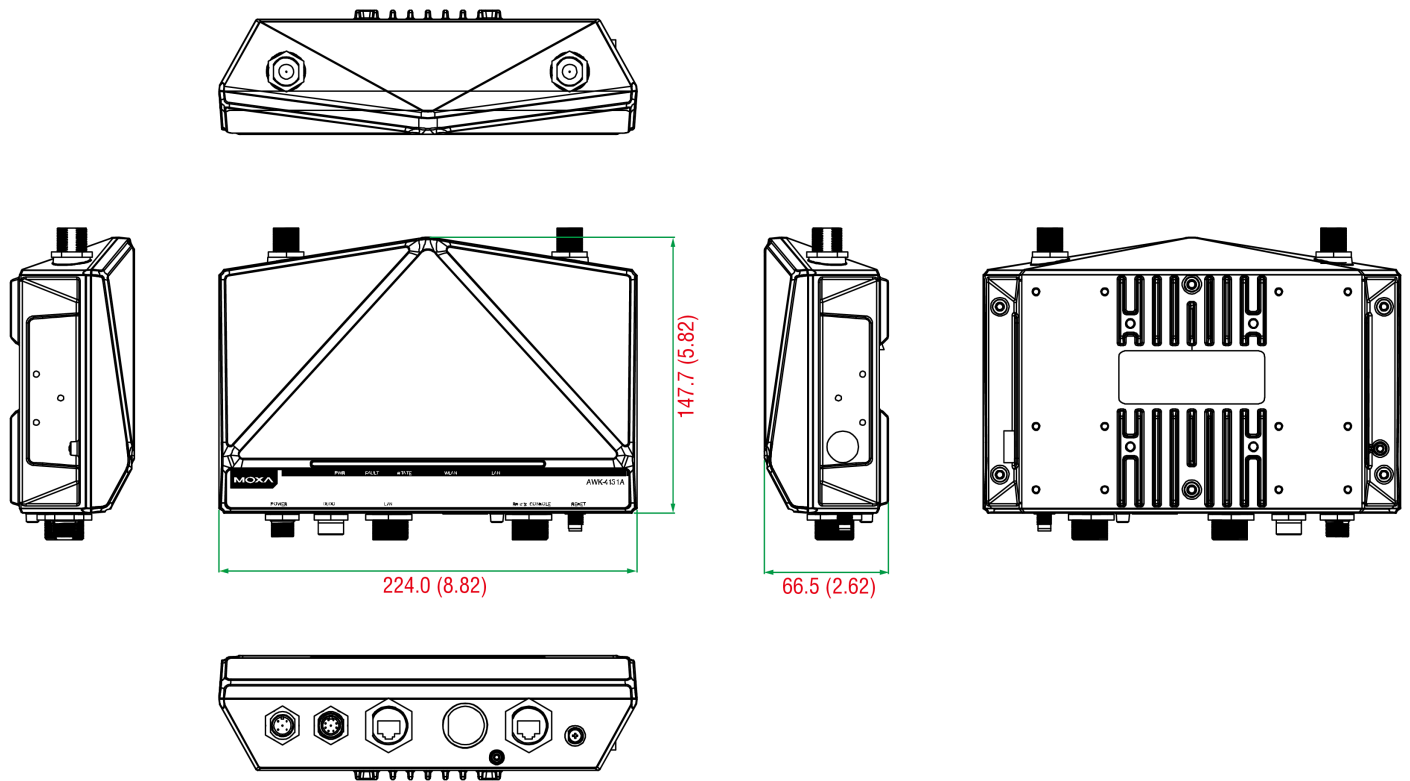
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

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

尺寸

單位：公釐（英吋）



Side View

Front, Top, and Rear Views

Side View

Bottom View

訂購資訊

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

配件（選購）

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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