

# AWK-4252A 系列

戶外工業級 Wi-Fi 5 (802.11ac) 無線 AP/橋接器/用戶端



## 特色與優點

- IEEE 802.11a/b/g/n/ac Wave 2 AP/橋接器/用戶端
- 同時雙頻 Wi-Fi，資料傳輸速率最高可達 1.267 Gbps
- 最新的 WPA3 加密技術可增強無線網路安全性
- 通用 (UN) 型號，帶有可配置的國家或地區代碼，部署更加靈活
- 透過網路位址轉譯 (NAT) 輕鬆設定網路
- 毫秒等級的用戶端 Turbo Roaming 漫遊<sup>1</sup>
- 內建 2.4 GHz 和 5 GHz 帶通濾波器，可實現更可靠的無線連接
- 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
- 整合式天線隔離
- 通過 IEC 62443-4-2 安全等級 1 認證
- -40°C 至 75°C 操作溫度範圍

## 認證



## 簡介

AWK-4252A 系列三合一工業級無線網路 AP/橋接器/用戶端的設計支援 IEEE 802.11ac 技術，資料傳輸速率高達 1.267 Gbps，可滿足日益增長的資料傳輸速度需求。在操作溫度、電源輸入電壓、突波、ESD 和震動方面，AWK-4252A 符合工業標準及規定。兩個備援直流電源輸入提升電源的可靠性，而且 AWK-4252A 可透過 PoE 獲得供電，部署更具彈性。AWK-4252A 可以在 2.4 和 5 GHz 頻段上同時操作，並相容現有的 802.11a/b/g/n 布署。

### 通過 IEC 62443-4-2 安全等級 1 認證

此系列產品的 US 和 UN 型號均通過 IEC 62443-4-2 安全等級 1 級認證 (FR\_Cyber10095)，可協助客戶滿足安全工業網路設計的法規租尋要求。

### 先進 802.11ac 工業無線解決方案

- 802.11a/b/g/n/ac 相容的 AP/橋接器/用戶端，提供彈性的布署方式
- DFS 頻道支援提供更廣泛的 5 GHz 頻道選擇，避免現有無線基礎設施的干擾

### 先進無線技術

- 基於用戶端的 Turbo Roaming 快速漫遊，達到無縫漫遊的目的。<sup>1</sup> 在 AP 間的漫遊復原時間 < 150 毫秒 (用戶端模式)
- 透過 AeroMesh，可輕鬆建立可擴充且具有自癒能力的 Wi-Fi 網路

### 工業級耐用性

- -40 至 75°C 的寬廣操作溫度，可在惡劣環境中提供順暢的無線通訊
- 增強型天線連接埠隔離保護設計可承受高達 30 kV 的 ESD 並提供 6 kV 的突波保護

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。

## 規格

### WLAN Interface

|  |   |
|--|---|
| WLAN Standards   | 2.4 GHz: 802.11b/g/n with 256 QAM support<br>5 GHz: 802.11a/n/ac Wave 2 with 256 QAM support<br>WMM for QoS   |
| Frequency Band for US (20 MHz operating channels)        | AWK-4252A US Models Only:<br>2.412 to 2.462 GHz (11 channels)<br>5.180 to 5.240 GHz (4 channels)<br>5.260 to 5.320 GHz (4 channels) <sup>2</sup><br>5.500 to 5.700 GHz (11 channels) <sup>2</sup><br>5.745 to 5.825 GHz (5 channels)  |
| Frequency Band for UN (20 MHz operating channels)        | AWK-4252A UN Models Only:<br>2.412 to 2.472 GHz (13 channels)<br>5.180 to 5.240 GHz (4 channels)<br>5.260 to 5.320 GHz (4 channels) <sup>2</sup><br>5.500 to 5.700 GHz (11 channels) <sup>2</sup><br>5.745 to 5.825 GHz (5 channels)<br>Available channels change depending on the selected country or region code. |
| Wireless Security  | WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES)<br>WPA/WPA2/WPA3-Personal  |
| Wireless Roaming   | Turbo Roaming <sup>3</sup><br>802.11r   |
| Transmission Rate  | 2.4 GHz:<br>802.11b: 1 to 11 Mbps<br>802.11g: 6 to 54 Mbps<br>802.11n: 6.5 to 400 Mbps<br><br>5 GHz:<br>802.11a: 6 to 54 Mbps<br>802.11n: 6.5 to 300 Mbps<br>802.11ac: 6.5 to 867 Mbps  |
| Transmitter Power for 802.11a (Dual Chain)               | 24±1.5 dBm @ 6 Mbps<br>22±1.5 dBm @ 54 Mbps   |
| Transmitter Power for 802.11n (5 GHz, Dual Chain)        | 24±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS7 20 MHz<br>23±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS7 40 MHz  |
| Transmitter Power for 802.11ac (Dual Chain)              | 23.5±1.5 dBm @ MCS0 20 MHz<br>20.5±1.5 dBm @ MCS8 20 MHz<br>23.5±1.5 dBm @ MCS0 40 MHz<br>20±1.5 dBm @ MCS9 40 MHz<br>22.5±1.5 dBm @ MCS0 80 MHz<br>20±1.5 dBm @ MCS9 80 MHz  |
| Transmitter Power for 802.11b (Dual Chain)               | 27.5±1.5 dBm @ 1 Mbps<br>28±1.5 dBm @ 11 Mbps   |
| Transmitter Power for 802.11g (Dual Chain)               | 28±1.5 dBm @ 6 Mbps<br>25±1.5 dBm @ 54 Mbps   |
| Transmitter Power for 802.11n (2.4 GHz, Dual Chain)      | 26±1.5 dBm @ MCS0 20 MHz<br>24±1.5 dBm @ MCS7 20 MHz<br>26±1.5 dBm @ MCS0 40 MHz<br>24.5±1.5 dBm @ MCS7 40 MHz  |
| Receiver Sensitivity for 802.11a (measured at 5.680 GHz) | Typ. -88 @ 6 Mbps<br>Typ. -71 @ 54 Mbps   |

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。

3. 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。

|   |  |
|---|--|
| Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)   | Typ. -87 dBm @ MCS0 20 MHz<br>Typ. -68 dBm @ MCS7 20 MHz<br>Typ. -83 dBm @ MCS0 40 MHz<br>Typ. -66 dBm @ MCS7 40 MHz   |
| Receiver Sensitivity for 802.11ac                                 | Typ. -87 dBm @ MCS0 20 MHz<br>Typ. -64 dBm @ MCS8 20 MHz<br>Typ. -84 dBm @ MCS0 40 MHz<br>Typ. -59 dBm @ MCS9 40 MHz<br>Typ. -81 dBm @ MCS0 80 MHz<br>Typ. -56 dBm @ MCS9 80 MHz   |
| Receiver Sensitivity for 802.11b (measured at 2.437 GHz)          | Typ. -93 dBm @ 1 Mbps<br>Typ. -86 dBm @ 11 Mbps<br>Note: Concurrent USB read/write activity on the device may generate interference and may mildly affect receiver sensitivity performance. It is recommended to avoid USB activity on the device in mission-critical applications.  |
| Receiver Sensitivity for 802.11g (measured at 2.437 GHz)          | Typ. -88 dBm @ 6 Mbps<br>Typ. -71 dBm @ 54 Mbps<br>Note: Concurrent USB read/write activity on the device may generate interference and may mildly affect receiver sensitivity performance. It is recommended to avoid USB activity on the device in mission-critical applications.  |
| Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz) | Typ. -87 dBm @ MCS0 20 MHz<br>Typ. -68 dBm @ MCS7 20 MHz<br>Typ. -84 dBm @ MCS0 40 MHz<br>Typ. -66 dBm @ MCS7 40 MHz<br>Note: Concurrent USB read/write activity on the device may generate interference and may mildly affect receiver sensitivity performance. It is recommended to avoid USB activity on the device in mission-critical applications. |
| WLAN Operation Mode   | Access point<br>Client<br>Client-Router<br>Master<br>Slave<br>Sniffer<br>Mesh  |
| Antenna   | External, 3/6 dBi<br>Omni-directional  |
| Antenna Connectors  | 2 x N-type female  |

#### Ethernet Interface

|   |  |
|---|--|
| Standards                                       | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X)<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3af for PoE<br>IEEE 802.3at for PoE<br>IEEE 802.3az for Energy-Efficient Ethernet<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1X for authentication |
| 10/100/1000BaseT(X) Ports (RJ45 connector)      | 1  |
| PoE Ports (10/100/1000BaseT(X), RJ45 connector) | 1  |

## Ethernet Software Features

|                 |  |
|-----------------|--|
| Management      | DHCP Server<br>DHCP Client<br>DNS<br>HTTP<br>IPv4/IPv6<br>LLDP<br>SMTP<br>SNMPv1/v2c/v3<br>Syslog<br>TCP/IP<br>Telnet<br>UDP<br>VLAN<br>MXconfig |
| Routing         | Port forwarding<br>Static Route<br>NAT   |
| Security        | HTTPS/SSL<br>RADIUS<br>SSH<br>Certificate Management   |
| Time Management | SNTP Client  |

## Firewall

|        |   |
|--------|---|
| Filter | ICMP<br>MAC address<br>IP protocol<br>Port-based<br>Wi-Fi ACL<br>Client Isolation |
|--------|---|

## Serial Interface

|              |                      |
|--------------|----------------------|
| Console Port | RS-232<br>8-pin RJ45 |
|--------------|----------------------|

## USB Interface

|              |            |
|--------------|------------|
| Storage Port | USB Type A |
|--------------|------------|

## LED Interface

|                |                                |
|----------------|--------------------------------|
| LED Indicators | PWR, LAN1, LAN2, 2.4G, 5G, SYS |
|----------------|--------------------------------|

## Input/Output Interface

|                        |  |
|------------------------|--|
| Digital Inputs         | 2<br>Max. input current: 8 mA<br>+13 to +30 V for state 1<br>+3 to -30 V for state 0 |
| Alarm Contact Channels | Relay output with current carrying capacity of 1 A @ 24 VDC                          |
| Buttons                | Reset button   |

## Physical Characteristics

|            |   |
|------------|---|
| Housing    | Metal   |
| Dimensions | 66.5 x 157.6 x 244 mm (2.56 x 6.20 x 9.61 in) |
| IP Rating  | IP68  |

|              |   |
|--------------|---|
| Weight       | 2024 g (4.7 lb)   |
| Installation | Wall mounting<br>DIN-rail mounting (with optional kit)<br>Pole mounting (with optional kit) |

### Power Parameters

|                   |   |
|-------------------|---|
| Input Current     | 12-48 VDC, 2.2-0.55 A   |
| Input Voltage     | 12 to 48 VDC<br>Redundant dual inputs<br>48 VDC Power-over-Ethernet |
| Power Connector   | M12 A-coded 5-pin male connector                                    |
| Power Consumption | 28.4 W (max.)   |

### Environmental Limits

|  |   |
|--|---|
| Operating Temperature                  | Wide Temp. Models: -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<br>EN 55032/35  |
| EMI           | CISPR 32, FCC Part 15B Class A  |
| EMS           | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 10 V/m<br>IEC 61000-4-8 PFMF: 30 A/m |
| Cybersecurity | IEC 62443-4-2 Security Level 1<br>EN 18031-1  |
| Safety        | IEC 62368-1<br>UL 62368-1   |
| Vibration     | IEC 60068-2-6   |
| Radio         | EN 300 328, EN 301 489-1/17, EN 301 893, FCC, MIC, NCC, RCM, SRRC, WPC, KC, NBTC, IC  |

### MTBF

|           |                           |
|-----------|---------------------------|
| Time      | 746,471 hrs               |
| Standards | Telcordia Standard SR-332 |

### Warranty

|                 |  |
|-----------------|--|
| Warranty Period | 5 years  |
| Details         | See <a href="http://www.moxa.com/tw/warranty">www.moxa.com/tw/warranty</a> |

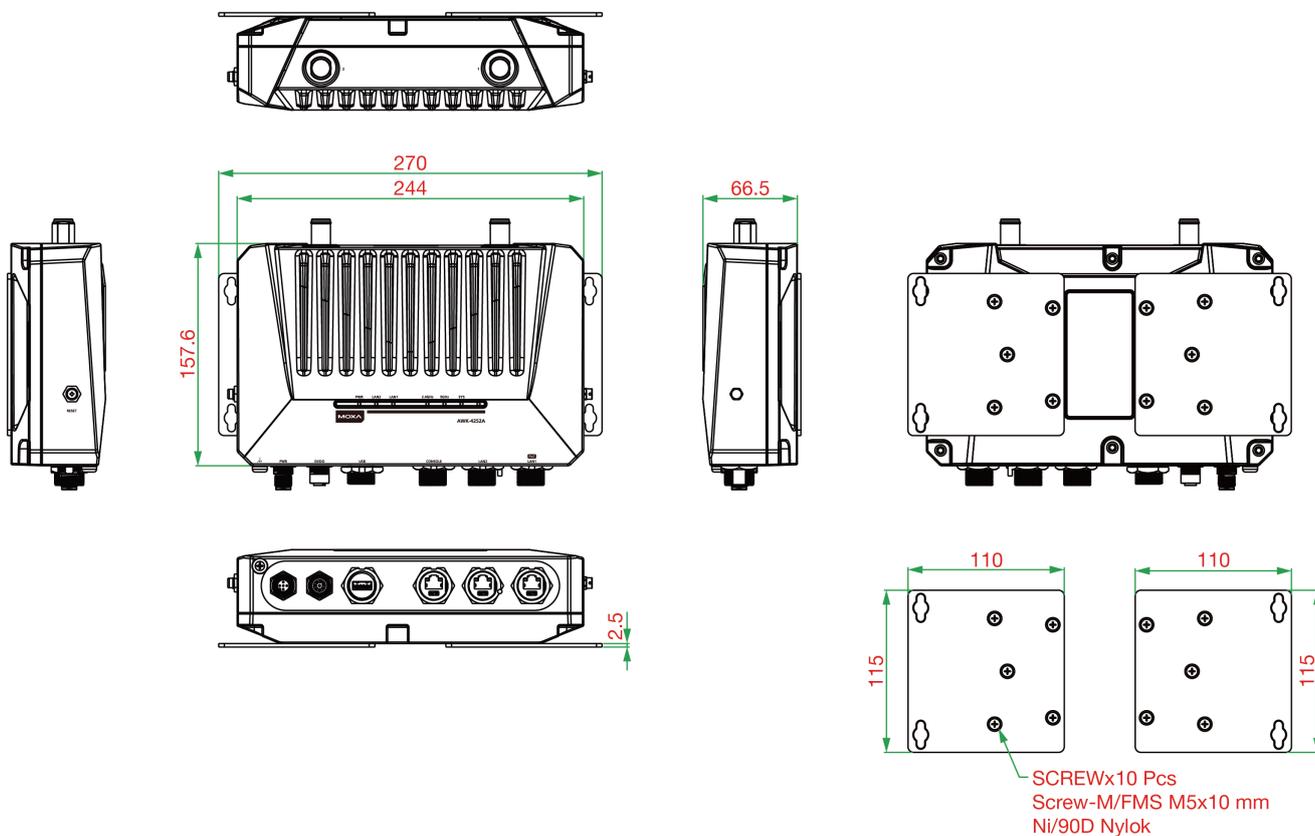
### Package Contents

|                  |   |
|------------------|---|
| Device           | 1 x AWK-4252A Series wireless AP/bridge/client  |
| Installation Kit | 2 x cap, plastic, for N-type connector<br>4 x cap, metal, for Console/USB/LAN1/LAN2<br>1 x cap, metal, for DI/DO port |

|               |   |
|---------------|---|
|               | 1 x wall-mounting kit                             |
| Antenna       | 2 x 2.4/5 GHz antenna                             |
| Documentation | 1 x quick installation guide<br>1 x warranty card |

## 尺寸

單位：公釐



## 訂購資訊

| Model Name     | Band | Standards               | Operating Temp. |
|----------------|------|-------------------------|-----------------|
| AWK-4252A-UN-T | UN   | 802.11a/b/g/n/ac Wave 2 | -40 to 75°C     |
| AWK-4252A-US-T | US   | 802.11a/b/g/n/ac Wave 2 | -40 to 75°C     |

## 配件 (選購)

### Antennas

|                      |   |
|----------------------|---|
| ANT-WSB-PNF-12-02    | 12 dBi at 2.4 GHz, N-type (female), single-band directional antenna                     |
| ANT-WSB5-PNF-16      | 16 dBi at 5 GHz, N-type (female), single-band directional 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-PNF-1011     | 10 dBi at 2.4 GHz and 11 dBi at 5 GHz, N-type (female), dual-band directional antenna   |
| 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              |
| MAT-WDB-PA-NF-2-0708 | 2.4/5 GHz, panel antenna, 7/8 dBi, MIMO 2x2, N-type (female)                            |
| ANT-WDB-ANM-0502     | 5 dBi at 2.4 GHz or 2 dBi at 5 GHz, N-type (male), omnidirectional antenna              |

### Wireless Antenna Cables

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

### Surge Arrestors

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

### Wireless Terminating Resistors

|             |  |
|-------------|--|
| A-TRM-50-NM | 50-ohm termination resistor with N-type male connector |
|-------------|--|

### Mounting Kits

|              |                   |
|--------------|-------------------|
| PK-DC2DOF    | Pole mounting kit |
| PK-DC2DOF-02 | PK-DC2DOF-02      |

### Connectors

|                    |   |
|--------------------|---|
| M12A-5P-IP68-SCREW | Field-installable A-coded M12 screw-in 5-pin (female) connector, IP68 |
|--------------------|---|

### Wireless Connector Caps

|              |                                  |
|--------------|----------------------------------|
| A-CAP-M12M-M | Metal cap for M12 male connector |
|--------------|----------------------------------|

### Cables

|                 |   |
|-----------------|---|
| CBL-RJ45F25-150 | 8-pin RJ45 to DB25 female serial cable, 1.5 m |
| CBL-RJ45F9-150  | 8-pin RJ45 to DB9 female serial cable, 1.5m   |

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