

# AWK-4252A Series

Outdoor industrial IEEE 802.11a/b/g/n/ac wireless AP/bridge/client



## Features and Benefits

- IEEE 802.11a/b/g/n/ac Wave 2 AP/bridge/client
- Concurrent dual-band Wi-Fi with aggregated data rates up to 1.267 Gbps
- Latest WPA3 encryption for enhanced wireless network security
- Universal (UN) models with configurable country or region code for more flexible deployment
- Easy network setup with Network Address Translation (NAT)
- Millisecond-level Client-based Turbo Roaming<sup>1</sup>
- Built-in 2.4 GHz and 5 GHz band pass filter for more reliable wireless connections
- IP68-rated weatherproof housing designed for outdoor applications and -40 to 75°C wide operating temperature range
- Integrated antenna isolation

## Certifications



## Introduction

The AWK-4252A Series 3-in-1 industrial wireless AP/bridge/client is designed to meet the growing need for faster data transmission speeds through IEEE 802.11ac technology for aggregated data rates of up to 1.267 Gbps. The AWK-4252A is compliant with industrial standards and approvals covering operating temperature, power input voltage, surge, ESD, and vibration. The two redundant DC power inputs increase the reliability of the power supply, and the AWK-4252A can be powered via PoE to facilitate flexible deployment. The AWK-4252A can operate concurrently on both the 2.4 and 5 GHz bands and is backwards-compatible with existing 802.11a/b/g/n deployments to future-proof your wireless investments.

### Advanced 802.11ac Industrial Wireless Solution

- 802.11a/b/g/n/ac compliant AP/bridge/client for flexible deployment
- DFS channel support allows a wider range of 5 GHz channel selection to avoid interference from existing wireless infrastructure

### Advanced Wireless Technology

- Seamless roaming with client-based Turbo Roaming<sup>1</sup> for < 150 ms roaming recovery time between APs (Client Mode)

### Industrial Ruggedness

- -40 to 75°C wide operating temperature for smooth wireless communication in harsh environments
- Enhanced antenna port isolation protection designed to withstand up to 30 kV ESD and 6 kV surge protection

## Specifications

### 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   |
| 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> |

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.

|   |   |
|---|---|
|   | 5.500 to 5.700 GHz (11 channels) <sup>3</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 2.484 GHz (14 channels)<br>5.180 to 5.240 GHz (4 channels)<br>5.260 to 5.320 GHz (4 channels) <sup>3</sup><br>5.500 to 5.700 GHz (11 channels) <sup>3</sup><br>5.745 to 5.825 GHz (5 channels)<br>Available channels change depending on the selected country or region code. |
| Wireless Security   | WEP encryption (64-bit and 128-bit)<br>WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES)<br>WPA/WPA2/WPA3-Personal   |
| 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   |
| 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   |

3. 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.

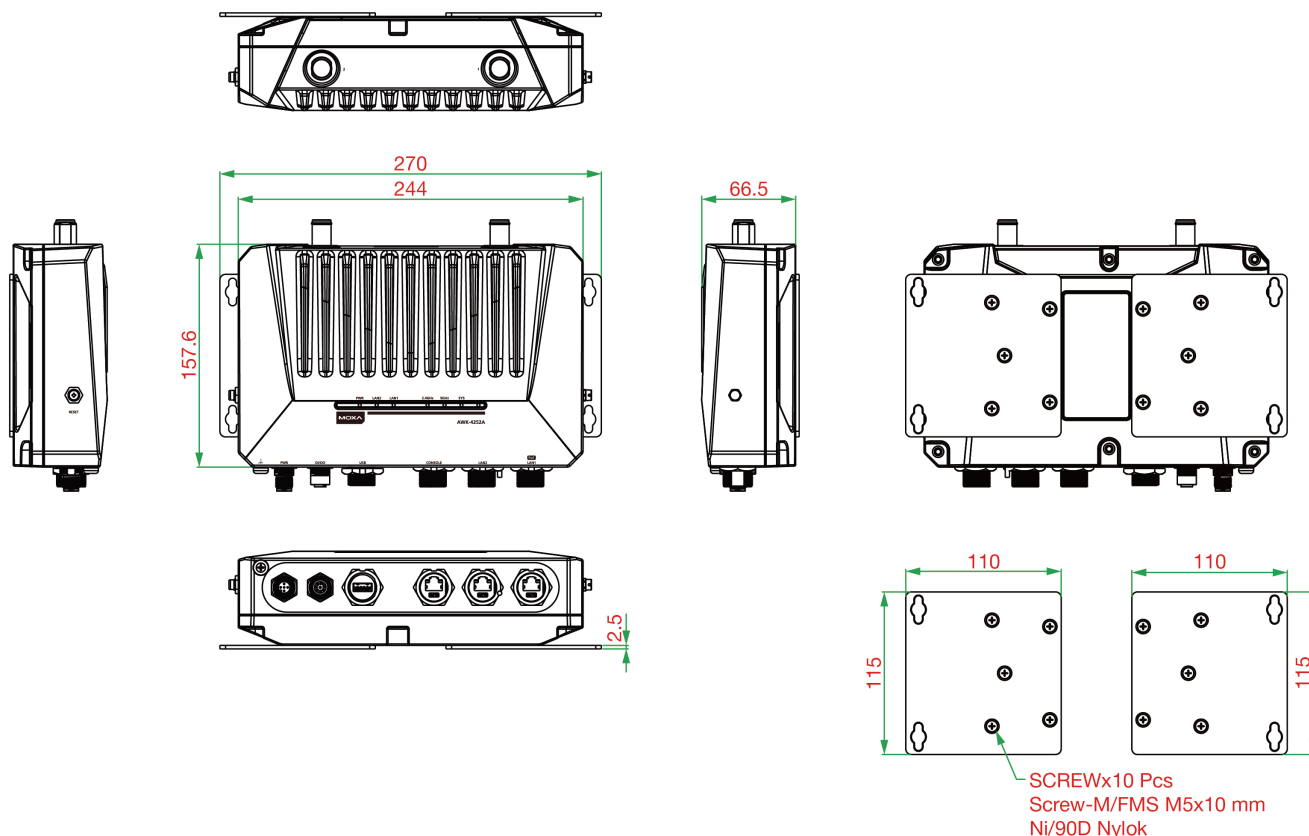
|   |  |
|---|--|
|   | Note: Concurrent USB read/write activity on the device may generate interference and may mildly affect receiver sensitivity performance. It is recommended to avoid USB activity on the device in mission-critical applications.   |
| Receiver Sensitivity for 802.11g (measured at 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  |
| Antenna   | External, 3/6 dBi<br>Omni-directional  |
| Antenna Connectors  | 2 x N-type female  |
| <b>Ethernet Interface</b>   |  |
| 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 802.1Q 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  |
| <b>Ethernet Software Features</b>                                 |  |
| Management  | DHCP Client<br>DNS<br>HTTP<br>IPv4<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   |
| Time Management   | SNTP Client  |

|  |   |
|--|---|
| <b>Firewall</b>                        |   |
| Filter                                 | ICMP<br>MAC address<br>IP protocol<br>Port-based  |
| <b>Serial Interface</b>                |   |
| Console Port                           | RS-232<br>8-pin RJ45  |
| <b>USB Interface</b>                   |   |
| Storage Port                           | USB Type A  |
| <b>LED Interface</b>                   |   |
| LED Indicators                         | PWR, LAN1, LAN2, 2.4G, 5G, SYS  |
| <b>Input/Output Interface</b>          |   |
| 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  |
| <b>Physical Characteristics</b>        |   |
| 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) |
| <b>Power Parameters</b>                |   |
| 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.)   |
| <b>Environmental Limits</b>            |   |
| 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)   |
| <b>Standards and Certifications</b>    |   |
| 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 |
| Safety                  | IEC 60950-1<br>IEC 62368-1<br>UL 62368-1  |
| Vibration               | IEC 60068-2-6   |
| Radio                   | EN 300 328, EN 301 489-1/17, EN 301 893, ANATEL, FCC, MIC, NCC, RCM, SRRC, WPC, KC, IC  |
| <b>MTBF</b>             |   |
| Time                    | 746,471 hrs   |
| Standards               | Telcordia SR332   |
| <b>Warranty</b>         |   |
| Warranty Period         | 5 years   |
| Details                 | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  |
| <b>Package Contents</b> |   |
| 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<br>1 x wall-mounting kit  |
| Antenna                 | 2 x 2.4/5 GHz antenna   |
| Documentation           | 1 x quick installation guide<br>1 x warranty card   |

## Dimensions

Unit: mm



## Ordering Information

| 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     |

## Accessories (sold separately)

### 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      |

#### Wireless Connector Caps

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

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