

# AWK-1165A Series

## Entry-level 5-port industrial IEEE 802.11ax wireless APs



### Features and Benefits

- High-speed IEEE 802.11ax Wi-Fi
- Selectable dual-band Wi-Fi with data rates up to 1,201 Mbps
- Latest WPA3 encryption for enhanced wireless network security
- Universal (UN) models with configurable country or region code for more flexible deployment
- Built-in 2.4 GHz and 5 GHz band pass filter for more reliable wireless connections
- -40 to 75°C wide operating temperature range (-T models)
- Integrated antenna isolation

### Certifications



## Introduction

The AWK-1165A Series industrial wireless AP is designed to meet the growing need for faster data transmission speeds while servicing more clients through IEEE 802.11ax (Wi-Fi 6) technology. The AWK-1165A is compliant with industrial standards and approvals covering operating temperature, power input voltage, surge, ESD, and vibration. The compact form factor with DIN-rail or optional wall mounting easily fits into industrial machines or control cabinets, offering reliable wireless services. The AWK-1165A supports selectable 2.4 and 5 GHz bands and is backwards compatible with existing 802.11a/b/g/n/ac deployments to future-proof your wireless investments.

### Advanced 802.11ax Industrial Wireless Solution

- 802.11ax Wi-Fi 6 compliant access point backwards compatible with Wi-Fi 4/ Wi-Fi 5 for flexible deployment
- DFS channel support allows a wider range of 5 GHz channel selection to avoid interference from existing wireless infrastructure
- Wi-Fi 6 OFDMA (Orthogonal Frequency-Division Multiple Access) technology enables concurrent communication with multiple clients for improved network efficiency
- Wi-Fi 6 TWT (Target Wake Time) technology facilitates better scheduling and longer battery life for connected devices

### Advanced Wireless Technology

- AP-based client disconnection mechanism to help wireless clients without roaming intelligence obtain optimal AP services

### Industrial Ruggedness

- Integrated antenna isolation designed to provide protection against external electrical interference
- -40 to 75°C wide operating temperature (-T) models for smooth wireless communication in harsh environments

## Specifications

### WLAN Interface

|   |  |
|---|--|
| WLAN Standards                                    | 2.4 GHz: 802.11ax with 1024 QAM support, 20/40 MHz<br>5 GHz: 802.11ax with 1024 QAM support, 20/40/80 MHz  |
| Frequency Band for US (20 MHz operating channels) | AWK-1165A-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>1</sup><br>5.500 to 5.700 GHz (11 channels) <sup>1</sup><br>5.745 to 5.825 GHz (5 channels) |
| Frequency Band for UN (20 MHz operating channels) | AWK-1165A-UN models only:<br>2.412 to 2.472 GHz (13 channels)  |

1. 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.

|   |   |
|---|---|
|   | 5.180 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.<br>5.500 to 5.700 GHz (11 channels) <sup>2</sup> |
| 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>Up to 573.5 Mbps<br><br>5 GHz:<br>Up to 1,201 Mbps  |
| Transmitter Power for 802.11a (Dual Chain)                      | 21±1.5 dBm @ 6 Mbps<br>21±1.5 dBm @ 54 Mbps   |
| Transmitter Power for 802.11n (5 GHz, Dual Chain)               | 21±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS7 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS7 40 MHz  |
| Transmitter Power for 802.11ac (Dual Chain)                     | 21±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS8 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS9 40 MHz<br>21±1.5 dBm @ MCS0 80 MHz<br>21±1.5 dBm @ MCS9 80 MHz  |
| Transmitter Power for 802.11ax (Dual Chain)                     | 21±1.5 dBm @ MCS0 20 MHz<br>20±1.5 dBm @ MCS11 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>20±1.5 dBm @ MCS11 40 MHz<br>21±1.5 dBm @ MCS0 80 MHz<br>20±1.5 dBm @ MCS11 80 MHz   |
| Transmitter Power for 802.11b (Dual Chain)                      | 21±1.5 dBm @ 1 Mbps<br>21±1.5 dBm @ 11 Mbps   |
| Transmitter Power for 802.11g (Dual Chain)                      | 21±1.5 dBm @ 6 Mbps<br>21±1.5 dBm @ 54 Mbps   |
| Transmitter Power for 802.11n (2.4 GHz, Dual Chain)             | 21±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS7 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS7 40 MHz  |
| Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)            | 21±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS8 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS7 40 MHz  |
| Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)            | 21±1.5 dBm @ MCS0 20 MHz<br>21±1.5 dBm @ MCS11 20 MHz<br>21±1.5 dBm @ MCS0 40 MHz<br>21±1.5 dBm @ MCS11 40 MHz  |
| Receiver Sensitivity for 802.11a (measured at 5.680 GHz)        | Typ. -88 @ 6 Mbps<br>Typ. -72 @ 54 Mbps   |
| Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz) | Typ. -88 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  |

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.

|   |   |
|---|---|
| Receiver Sensitivity for 802.11ac (5 GHz)                         | Typ. -88 dBm @ MCS0 20 MHz<br>Typ. -65 dBm @ MCS8 20 MHz<br>Typ. -85 dBm @ MCS0 40 MHz<br>Typ. -60 dBm @ MCS9 40 MHz<br>Typ. -81 dBm @ MCS0 80 MHz<br>Typ. -55 dBm @ MCS9 80 MHz    |
| Receiver Sensitivity for 802.11ax (5 GHz)                         | Typ. -88 dBm @ MCS0 20 MHz<br>Typ. -59 dBm @ MCS11 20 MHz<br>Typ. -85 dBm @ MCS0 40 MHz<br>Typ. -56 dBm @ MCS11 40 MHz<br>Typ. -81 dBm @ MCS0 80 MHz<br>Typ. -52 dBm @ MCS11 80 MHz |
| Receiver Sensitivity for 802.11b (measured at 2.437 GHz)          | Typ. -96 dBm @ 1 Mbps<br>Typ. -88 dBm @ 11 Mbps   |
| Receiver Sensitivity for 802.11g (measured at 2.437 GHz)          | Typ. -90 dBm @ 6 Mbps<br>Typ. -74 dBm @ 54 Mbps   |
| Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz) | Typ. -90 dBm @ MCS0 20 MHz<br>Typ. -70 dBm @ MCS7 20 MHz<br>Typ. -87 dBm @ MCS0 40 MHz<br>Typ. -69 dBm @ MCS7 40 MHz  |
| Receiver Sensitivity for 802.11ac (2.4 GHz)                       | Typ. -90 dBm @ MCS0 20 MHz<br>Typ. -66 dBm @ MCS6 20 MHz<br>Typ. -87 dBm @ MCS0 40 MHz<br>Typ. -63 dBm @ MCS9 40 MHz  |
| Receiver Sensitivity for 802.11ax (2.4 GHz)                       | Typ. -90 dBm @ MCS0 20 MHz<br>Typ. -59 dBm @ MCS11 20 MHz<br>Typ. -87 dBm @ MCS0 40 MHz<br>Typ. -56 dBm @ MCS11 40 MHz  |
| WLAN Operation Mode   | Access point<br>Master<br>Sniffer   |
| Antenna   | External, 2/2 dBi<br>Omni-directional   |
| Antenna Connectors  | 2 RP-SMA 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 802.3az for Energy-Efficient Ethernet<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1X for authentication |
| 10/100/1000BaseT(X) Ports (RJ45 connector) | 5  |

## Ethernet Software Features

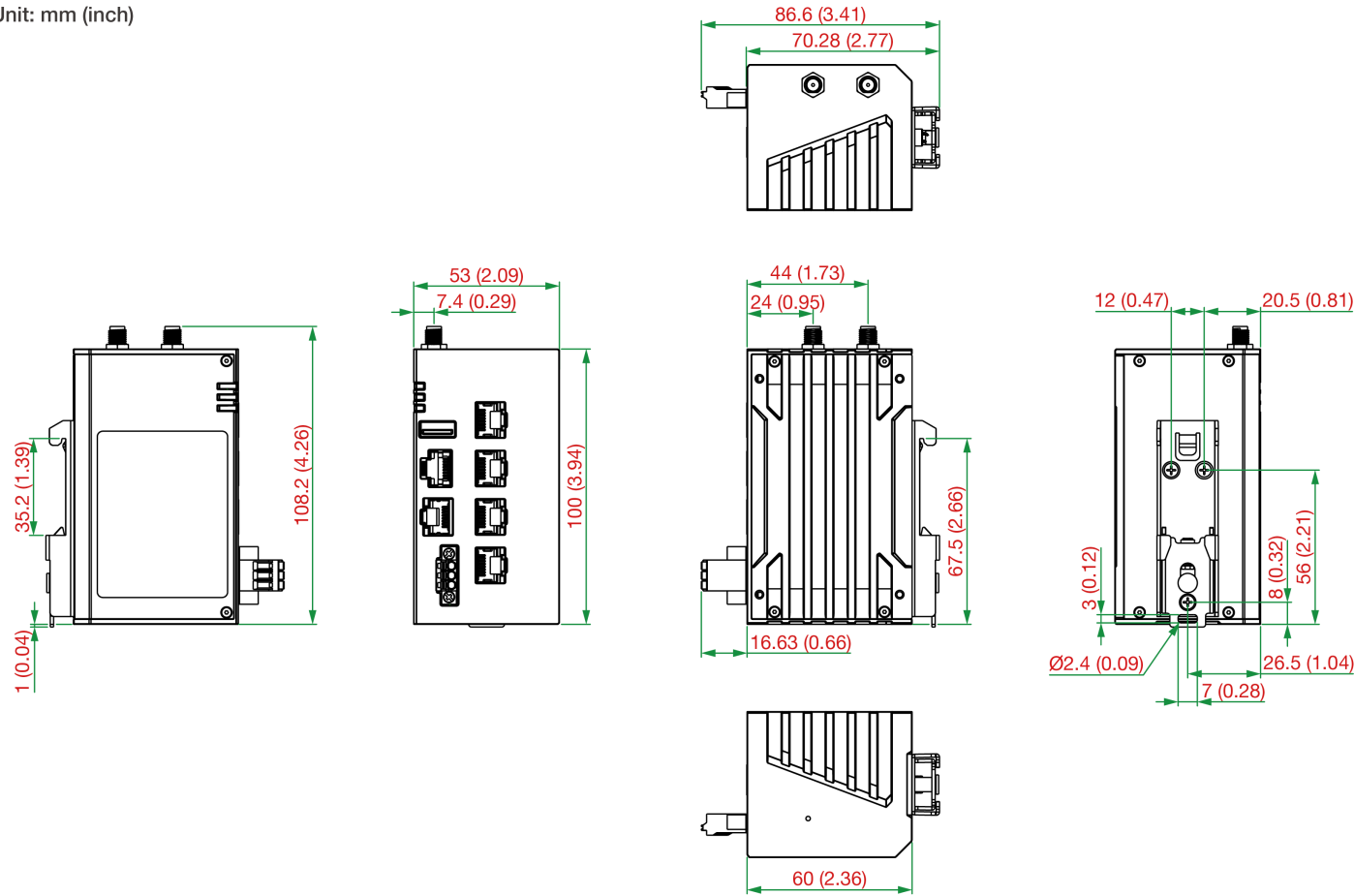
|                          |   |
|--------------------------|---|
| Management               | DHCP Server<br>DHCP Client<br>DNS<br>HTTP<br>IPv4<br>LLDP<br>SMTP<br>SNMPv1/v2c/v3<br>Syslog<br>TCP/IP<br>Telnet<br>UDP<br>VLAN<br>MXconfig |
| Security                 | HTTPS/SSL<br>RADIUS<br>SSH<br>Certificate 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, WLAN, SYSTEM   |
| Input/Output Interface   |   |
| Buttons                  | Reset button  |
| Physical Characteristics |   |
| Housing                  | Metal   |
| IP Rating                | IP30  |
| Dimensions               | AWK-1165A models: 60 x 100 x 53 mm (2.36 x 3.94 x 2.09 in)<br>AWK-1165A-T models: 60 x 100 x 66 mm (2.36 x 3.94 x 2.60 in)                  |
| Weight                   | AWK-1165A models: 428.5 g (0.94 lb)<br>AWK-1165A-T models: 516.5 g (1.14 lb)  |
| Installation             | DIN-rail mounting<br>Wall mounting (with optional kit)  |
| Power Parameters         |   |
| Input Current            | 9 to 30 VDC, 1.57 to 0.47 A   |
| Input Voltage            | 9 to 30 VDC   |

|  |   |
|--|---|
| Power Connector                        | 1 removable 3-contact terminal block(s)   |
| Power Consumption                      | 14 W (max.)   |
| <b>Environmental Limits</b>            |   |
| Operating Temperature                  | Standard Models: -25 to 60°C (-13 to 140°F)<br>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: 2 kV<br>IEC 61000-4-6 CS: 10 V/m<br>IEC 61000-4-8 PFMF: 30 A/m |
| Road Vehicles                          | E mark E1   |
| Medical                                | IEC 60601   |
| 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  |
| <b>MTBF</b>                            |   |
| Time                                   | 4,002,106 hrs   |
| Standards                              | Telcordia Standard SR-332   |
| <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-1165A Series wireless AP  |
| Installation Kit                       | 1 x DIN-rail kit  |
| Antenna                                | 2 x 2.4/5 GHz antenna   |
| Documentation                          | 1 x quick installation guide<br>1 x warranty card   |

Dimensions

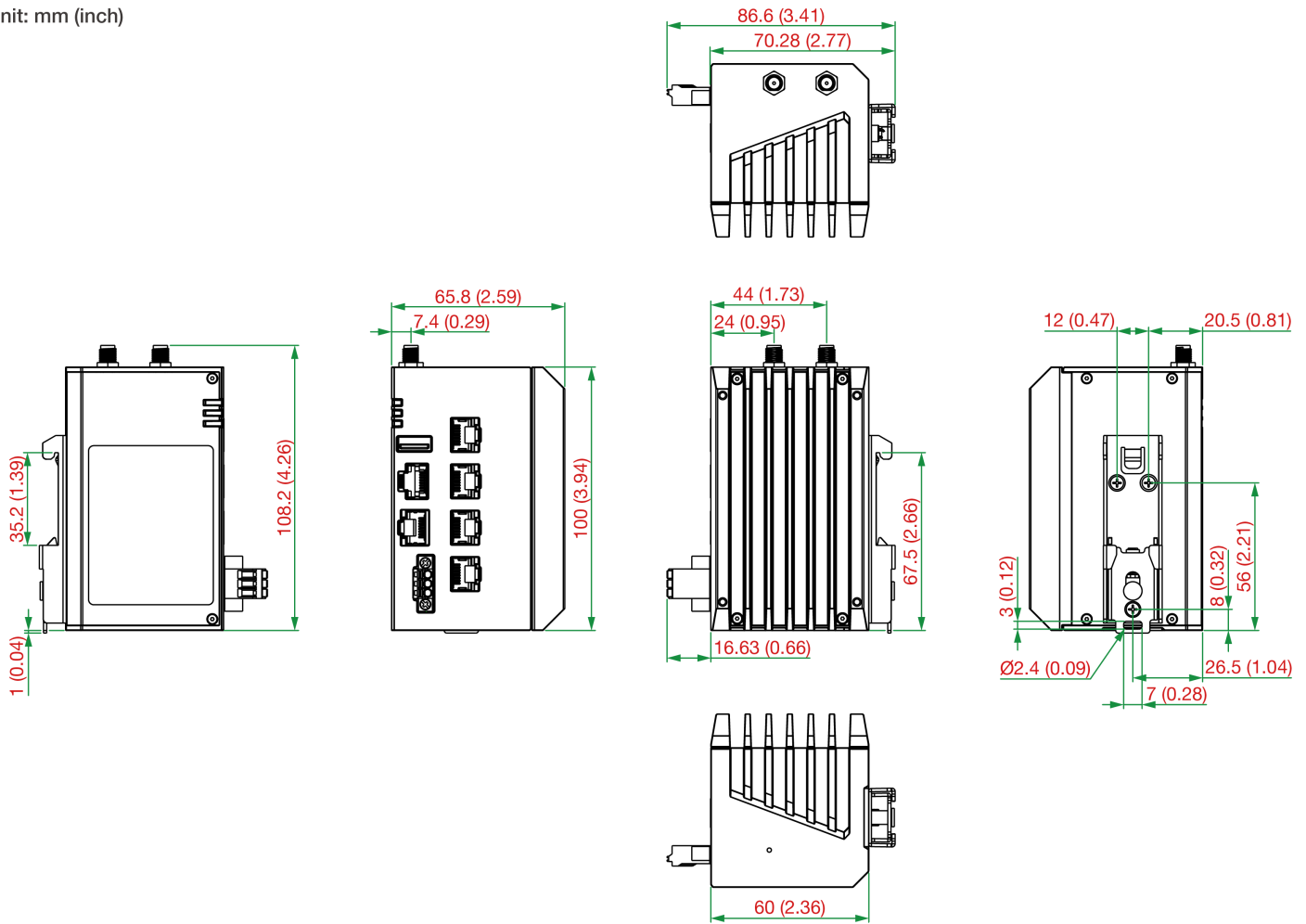
Standard Models

Unit: mm (inch)



## Wide Temperature (-T) Models

Unit: mm (inch)



## Ordering Information

| Model Name     | Band | Standards          | Operating Temp. |
|----------------|------|--------------------|-----------------|
| AWK-1165A-UN   | UN   | 802.11ax (Wi-Fi 6) | -25 to 60°C     |
| AWK-1165A-UN-T | UN   | 802.11ax (Wi-Fi 6) | -40 to 75°C     |
| AWK-1165A-US   | US   | 802.11ax (Wi-Fi 6) | -25 to 60°C     |
| AWK-1165A-US-T | US   | 802.11ax (Wi-Fi 6) | -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              |
| 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-WSB-AHRM-05-1.5m | 5 dBi at 2.4 GHz, RP-SMA (male), omnidirectional/dipole antenna, 1.5 m cable            |
| 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-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-RFRM-R4-150 | Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, magnetic base, RG-174 type, 1.5 m |
| A-CRF-RMNM-L1-300 | N-type (male) to RP SMA (male) LMR-195 Lite cable, 3 m   |
| A-CRF-RMNM-L1-600 | N-type (male) to RP SMA (male) LMR-195 Lite cable, 6 m   |
| A-CRF-RMNM-L1-900 | N-type (male) to RP SMA (male) LMR-195 Lite cable, 9 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 |
|-------------|--|

#### Wall-Mounting Kits

|          |   |
|----------|---|
| WK-56-01 | Wall-mounting kit with 2 plates (56 x 33.3 x 2 mm) and 4 screws |
|----------|---|

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