

AWK-1151C Series

Industrial IEEE 802.11a/b/g/n/ac wireless client



Features and Benefits

- IEEE 802.11a/b/g/n/ac Wave 2 wireless client
- Selectable dual-band Wi-Fi with data rates up to 867 Mbps
- 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 Roaming¹
- 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
- Developed according to the IEC 62443-4-1 and compliant with the IEC 62443-4-2 industrial cybersecurity standards

Certifications



Introduction

The AWK-1151C Series industrial wireless client is designed to meet the growing need for faster data transmission speeds through IEEE 802.11ac technology for data rates of up to 867 Mbps. The AWK-1151C 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 connectivity. The AWK-1151C can operate on the 2.4 or 5 GHz band and is backwards-compatible with existing 802.11a/b/g/n deployments to future-proof your wireless investments.

The AWK-1151C Series is compliant with the IEC 62443-4-2 and IEC 62443-4-1 Industrial Cybersecurity certifications, which cover both product security and secure development life-cycle requirements, helping our customers meet the compliance requirements of secure industrial network design.

Advanced 802.11ac Industrial Wireless Solution

- 802.11a/b/g/n/ac compliant 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 Roaming¹ for < 150 ms roaming recovery time between APs (Client Mode)

Industrial Ruggedness

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

Specifications

WLAN Interface

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|---|--|
| WLAN Standards | 2.4 GHz: 802.11b/g/n with 256 QAM support 5 GHz: 802.11a/n/ac Wave 2 with 256 QAM support |
| Frequency Band for US (20 MHz operating channels) | AWK-1151C US Models Only: 2.412 to 2.462 GHz (11 channels) |

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.

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|---|---|
| | 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 UN (20 MHz operating channels) | AWK-1151C UN Models Only: 2.412 to 2.472 GHz (13 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) Available channels change depending on the selected country or region code. |
| Wireless Security | WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2/WPA3-Personal |
| Transmission Rate | 2.4 GHz: 802.11b: 1 to 11 Mbps 802.11g: 6 to 54 Mbps 802.11n: 6.5 to 400 Mbps 5 GHz: 802.11a: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: 6.5 to 867 Mbps |
| Transmitter Power for 802.11a (Dual Chain) | 25±1.5 dBm @ 6 Mbps 23±1.5 dBm @ 54 Mbps |
| Transmitter Power for 802.11n (5 GHz, Dual Chain) | 25±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS7 20 MHz 24±1.5 dBm @ MCS0 40 MHz 22±1.5 dBm @ MCS7 40 MHz |
| Transmitter Power for 802.11ac (Dual Chain) | 25±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS8 20 MHz 24±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS9 40 MHz 23±1.5 dBm @ MCS0 80 MHz 20±1.5 dBm @ MCS9 80 MHz |
| Transmitter Power for 802.11b (Dual Chain) | 29±1.5 dBm @ 1 Mbps 29±1.5 dBm @ 11 Mbps |
| Transmitter Power for 802.11g (Dual Chain) | 29±1.5 dBm @ 6 Mbps 26±1.5 dBm @ 54 Mbps |
| Transmitter Power for 802.11n (2.4 GHz, Dual Chain) | 28±1.5 dBm @ MCS0 20 MHz 25±1.5 dBm @ MCS7 20 MHz 28±1.5 dBm @ MCS0 40 MHz 25±1.5 dBm @ MCS7 40 MHz |
| Receiver Sensitivity for 802.11a (measured at 5.680 GHz) | Typ. -89 @ 6 Mbps Typ. -72 @ 54 Mbps |
| Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz) | Typ. -89 dBm @ MCS0 20 MHz Typ. -69 dBm @ MCS7 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -66 dBm @ MCS7 40 MHz |
| Receiver Sensitivity for 802.11ac | Typ. -88 dBm @ MCS0 20 MHz Typ. -65 dBm @ MCS8 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -60 dBm @ MCS9 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -55 dBm @ MCS9 80 MHz |
| Receiver Sensitivity for 802.11b (measured at 2.437 GHz) | Typ. -96 dBm @ 1 Mbps Typ. -88 dBm @ 11 Mbps |

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.

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| Receiver Sensitivity for 802.11g (measured at 2.437 GHz) | Typ. -90 dBm @ 6 Mbps Typ. -74 dBm @ 54 Mbps |
| Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz) | Typ. -90 dBm @ MCS0 20 MHz Typ. -70 dBm @ MCS7 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -69 dBm @ MCS7 40 MHz |
| WLAN Operation Mode | Client Client-Router Slave Sniffer |
| Antenna | External, 2/2 dBi Omni-directional |
| Antenna Connectors | 2 RP-SMA female |

Ethernet Interface

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

Ethernet Software Features

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

Firewall

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|--------|---|
| Filter | ICMP MAC address IP protocol Port-based Client Isolation Wi-Fi ACL |
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Serial Interface

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|--------------|----------------------|
| Console Port | RS-232 8-pin RJ45 |
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|--|---|
| 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 | 100 x 130 x 22 mm (3.94 x 5.12 x 0.87 in) |
| Weight | 436 g (0.96 lb) |
| Installation | DIN-rail mounting 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.) |
| Environmental Limits | |
| Operating Temperature | Standard Models: -25 to 60°C (-13 to 140°F) 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 EN 55032/35 |
| 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: 1 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 30 A/m |
| Road Vehicles | E mark E1 |
| Safety | IEC 60950-1 IEC 62368-1 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 |
| Industrial Cybersecurity | IEC 62443-4-1 IEC 62443-4-2 |

MTBF

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|-----------|---------------------------|
| Time | 1,144,888 hrs |
| Standards | Telcordia Standard SR-332 |

Warranty

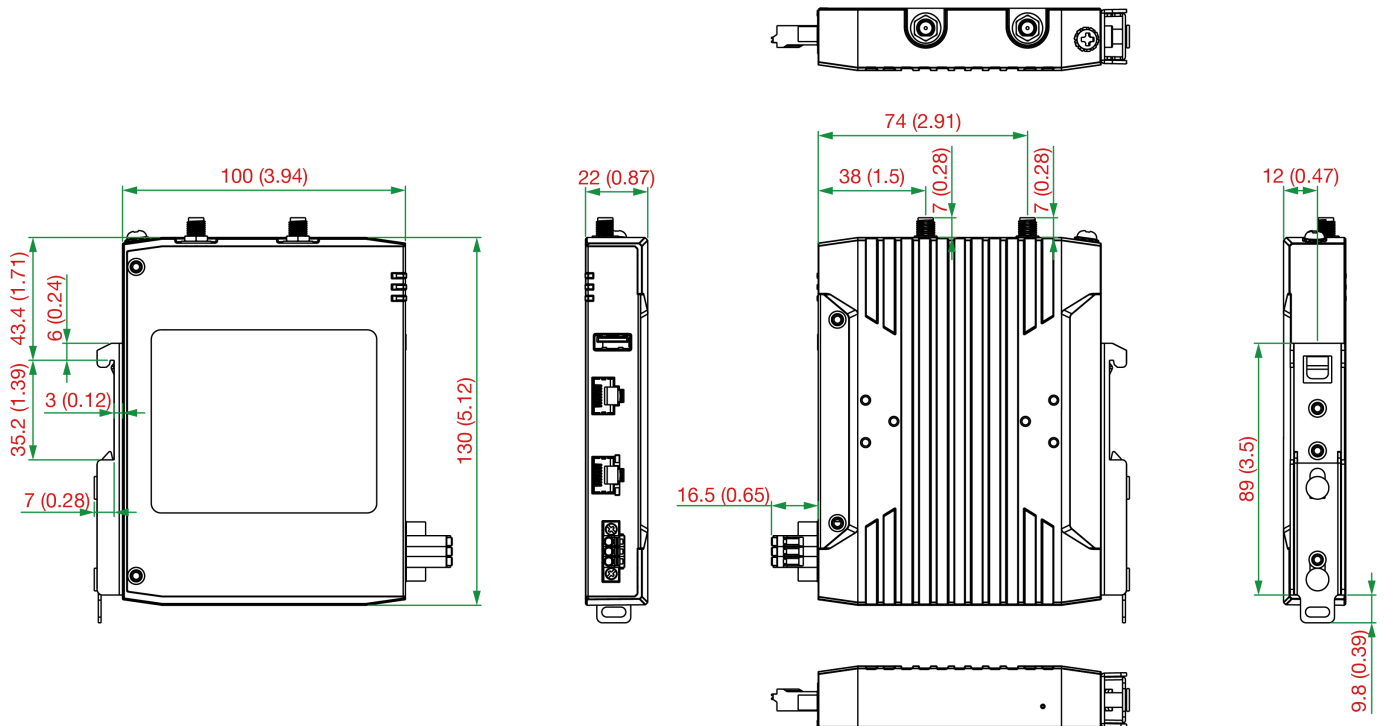
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|-----------------|--|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

Package Contents

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|------------------|---|
| Device | 1 x AWK-1151C Series wireless client |
| Installation Kit | 1 x DIN-rail kit |
| Antenna | 2 x 2.4/5 GHz antenna |
| Documentation | 1 x quick installation guide 1 x warranty card |

Dimensions

Unit: mm (inch)



Ordering Information

| Model Name | Band | Standards | Operating Temp. |
|----------------|------|-------------------------|-----------------|
| AWK-1151C-UN | UN | 802.11a/b/g/n/ac Wave 2 | -25 to 60°C |
| AWK-1151C-UN-T | UN | 802.11a/b/g/n/ac Wave 2 | -40 to 75°C |
| AWK-1151C-US | US | 802.11a/b/g/n/ac Wave 2 | -25 to 60°C |
| AWK-1151C-US-T | US | 802.11a/b/g/n/ac Wave 2 | -40 to 75°C |

Accessories (sold separately)

Antennas

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|-------------------------|---|
| 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

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|-------------------|--|
| 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

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|--------------|---|
| 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

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

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|-----------------|---|
| 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 |

Wall-Mounting Kits

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| WK-35-05 | Wall-mounting kit with 2 plates (35 x 44 x 2.5 mm), 6 NYLOK screws |
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