AWK-1151C Series

Industrial Wi-Fi 5 (802.11ac) wireless clients

Features and Benefits

- IEEE 802.11ac Wi-Fi 5 client
- Selectable dual-band Wi-Fi with data rates up to 867 Mbps
- AP-agnostic millisecond-level Client-based Turbo Roaming[1]
- Compact size for easy installation
- Easy network setup with Network Address Translation (NAT)
- Built-in 2.4 GHz and 5 GHz band pass filter for more reliable wireless connections
- Integrated antenna isolation to protect against external electrical interference
- -40 to 75°C wide operating temperature (-T) models provided for smooth wireless communication in harsh environments

Certifications

Introduction

The AWK-1151C Series is a range of specialized industrial wireless clients engineered to provide a dedicated and seamless connection for a single moving device. They are ideal for ensuring stable connections to AGVs, robotic arms, and other mobile machinery in dynamic production environments.

At the heart of the AWK-1151C Series' performance is the client-based Turbo Roaming technology, which achieves millisecond-level handovers between access points. This eliminates packet loss during transitions, maintaining continuous production, and enhancing operational efficiency. For maximum system flexibility, its AP-agnostic design ensures seamless interoperability with any brand of Wi-Fi access point.

Tailored Industrial Wireless Technology

- AP-agnostic seamless roaming with client-based Turbo Roaming[1] for sub-150 ms roaming recovery times between APs
- 802.11r Fast Roaming enables faster, more reliable Wi-Fi client roaming and improved third-party interoperability
- DFS channel support for a wider range of 5 GHz channels to avoid interference from existing wireless infrastructure
- Universal (UN) models with configurable country for more flexible global deployment
- Dedicated MXview Wireless network management software with dynamic topology view, interactive roaming history playback, and detailed device information and performance indicator charts
- Latest WPA3 encryption for enhanced wireless network security

Industrial Compliance and Certifications

- CC-Link IE TSN certified time-sensitive performance required to integrate wireless devices into advanced factory automation networks
- Compliant with EN 18031-1 to ensure both EU regulatory alignment and enhanced protection against cyberthreats

Specifications

WLAN Interface

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 WMM for QoS
Frequency Band for US (20 MHz operating channels)	AWK-1151C-US models only: 2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 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.

	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
Wireless Roaming	Turbo Roaming[3] 802.11r
Transmission Rate	2.4 GHz: Up to 400 Mbps 5 GHz: Up 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.
3. 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.

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

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

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

Firewall

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

Serial Interface

Console Port	RS-232 8-pin RJ45

USB Interface

Storage Port	USB Type A (for ABC-02 only)

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
Cybersecurity	IEC 62443-4-2 Security Level 1 EN 18031-1
Road Vehicles	E mark E1
Safety	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

MTBF

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

Warranty

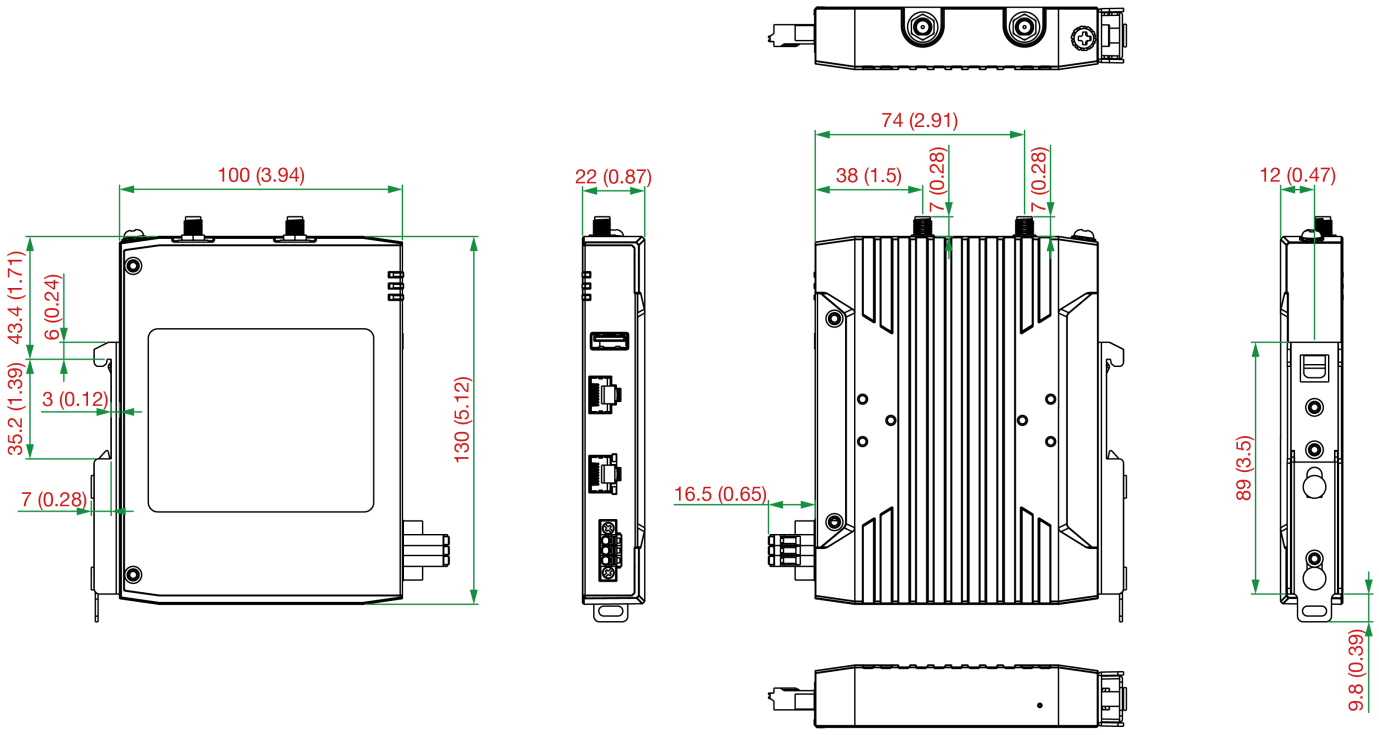
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

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

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-R5-60	Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, RG-402 type, 0.6 m
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

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

Wall-Mounting Kits

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