

AWK-1161C Series

Entry-level 1-port industrial Wi-Fi 6 (802.11ax) wireless clients



Features and Benefits

- IEEE 802.11ax Wi-Fi 6 client
- Selectable dual-band Wi-Fi with data rates up to 1,201 Mbps
- AP-agnostic millisecond-level Client-based Turbo Roaming¹
- 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
- Security features referencing IEC 62443-4-2 Security Level 2

Certifications



Introduction

The AWK-1161C Series is the smallest range of industrial wireless clients on the market, engineered to provide a dedicated and seamless connection for a single moving device. They are ideal for ensuring uninterrupted data transmission to AGVs, mobile inspection equipment, and robotic arms with limited onboard space. Leveraging Wi-Fi 6 OFDMA and spatial reuse technologies, these clients deliver robust and efficient communication, even in high-density environments.

At the heart of the AWK-1161C 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 Roaming¹ 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
- Troubleshooting SSID functionality for client-based operation modes activates a temporary SSID when the connection to the AP to perform wireless diagnostics
- Latest WPA3 encryption for enhanced wireless network security
- -40 to 75°C wide operating temperature (-T) models provided for smooth wireless communication in harsh environments

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: 802.11ax with 1024 QAM support, 20/40 MHz 5 GHz: 802.11ax with 1024 QAM support, 20/40/80 MHz WMM for QoS
Frequency Band for US (20 MHz operating channels)	AWK-1161C-US models only:

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.

	2.412 to 2.462 GHz (11 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)
Frequency Band for UN (20 MHz operating channels)	AWK-1161C-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 573.5 Mbps 5 GHz: Up to 1,201 Mbps
Transmitter Power for 802.11a (5 GHz, Dual Chain)	27 ⁴ ±1.5 dBm @ 6 Mbps 23.5 ⁴ ±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (5 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS7 20 MHz 26±1.5 dBm @ MCS0 40 MHz 22±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (5 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS8 20 MHz 25±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS9 40 MHz 25±1.5 dBm @ MCS0 80 MHz 21±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11ax (5 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 20±1.5 dBm @ MCS11 20 MHz 25±1.5 dBm @ MCS0 40 MHz 20±1.5 dBm @ MCS11 40 MHz 25±1.5 dBm @ MCS0 80 MHz 20±1.5 dBm @ MCS11 80 MHz
Transmitter Power for 802.11b (2.4 GHz, Dual Chain)	29 ⁵ ±1.5 dBm @ 1 Mbps 29 ⁵ ±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g (2.4 GHz, Dual Chain)	27±1.5 dBm @ 6 Mbps 25±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 24±1.5 dBm @ MCS7 20 MHz 26±1.5 dBm @ MCS0 40 MHz 24±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 24±1.5 dBm @ MCS8 20 MHz 26±1.5 dBm @ MCS0 40 MHz 23±1.5 dBm @ MCS9 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.
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.
4. When the ambient operating temperature exceeds 65°C, the maximum transmitter power should be set to 24 dBm to prevent performance degradation.
5. When the ambient operating temperature exceeds 70°C, the maximum transmitter power should be set to 24 dBm to prevent performance degradation.

Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)	26±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS11 20 MHz 26±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS11 40 MHz
Receiver Sensitivity for 802.11a	Typ. -88 dBm @ 6 Mbps Typ. -72 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -68 dBm @ MCS7 20 MHz Typ. -84 dBm @ MCS0 40 MHz Typ. -66 dBm @ MCS7 40 MHz
Receiver Sensitivity for 802.11ac (5 GHz)	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 802.11ax (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -52 dBm @ MCS11 80 MHz
Receiver Sensitivity for 802.11b	Typ. -96 dBm @ 1 Mbps Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g	Typ. -90 dBm @ 6 Mbps Typ. -74 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 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
Receiver Sensitivity for 802.11ac (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -66 dBm @ MCS6 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -63 dBm @ MCS9 40 MHz
Receiver Sensitivity for 802.11ax (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 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 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	AWK-1161C models: 60 x 100 x 34.2 mm (2.36 x 3.94 x 1.35 in) AWK-1161C-T models: 60 x 100 x 47.2 mm (2.36 x 3.94 x 1.86 in)
Weight	AWK-1161C models: 330 g (0.73 lb) AWK-1161C-T models: 387.5 g (0.85 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: 2 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
Medical	IEC 60601
Safety	IEC 62368-1 UL 62368-1
Cybersecurity	EN 18031-1
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	4,002,106 hrs
Standards	Telcordia Standard SR-332

Warranty

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

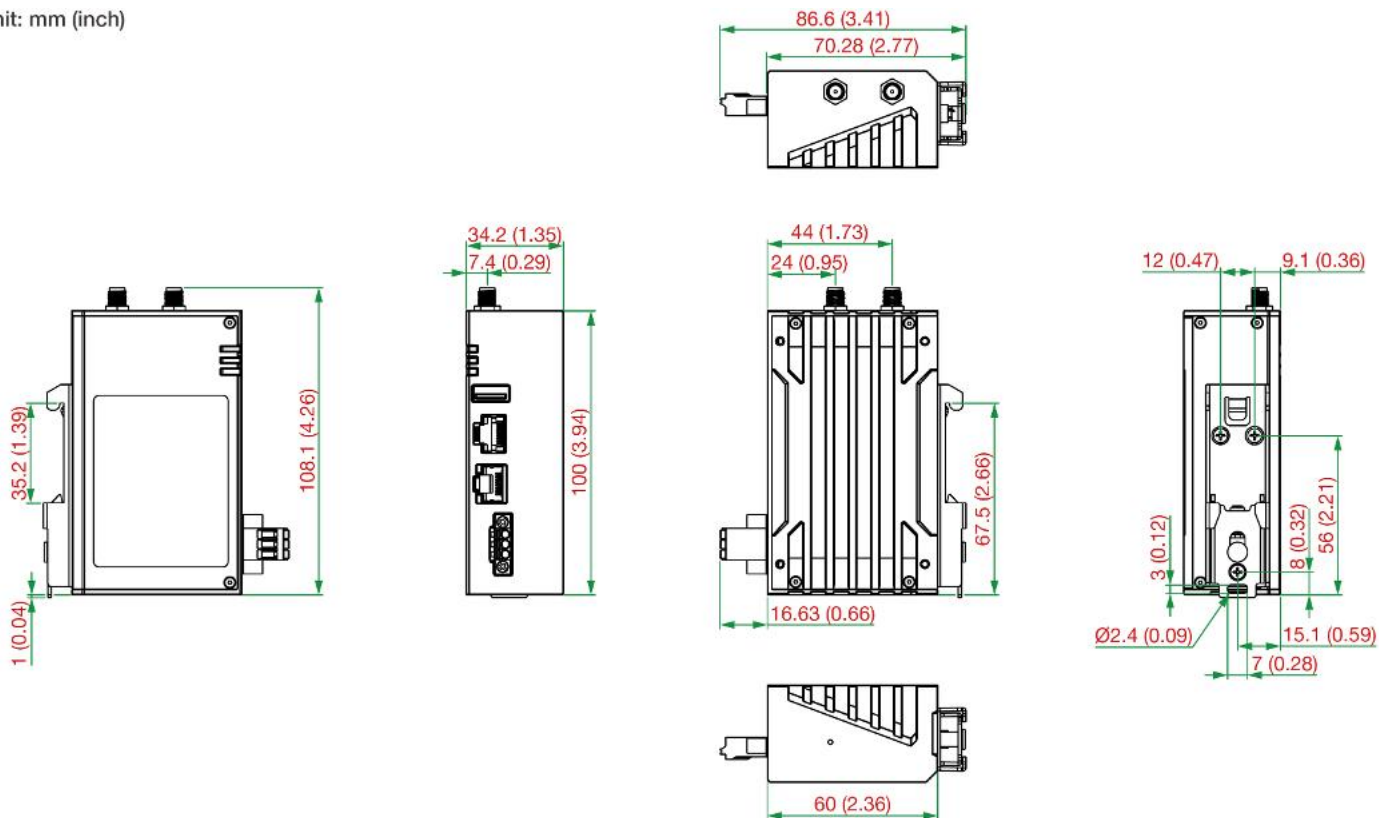
Package Contents

Device	1 x AWK-1161C 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

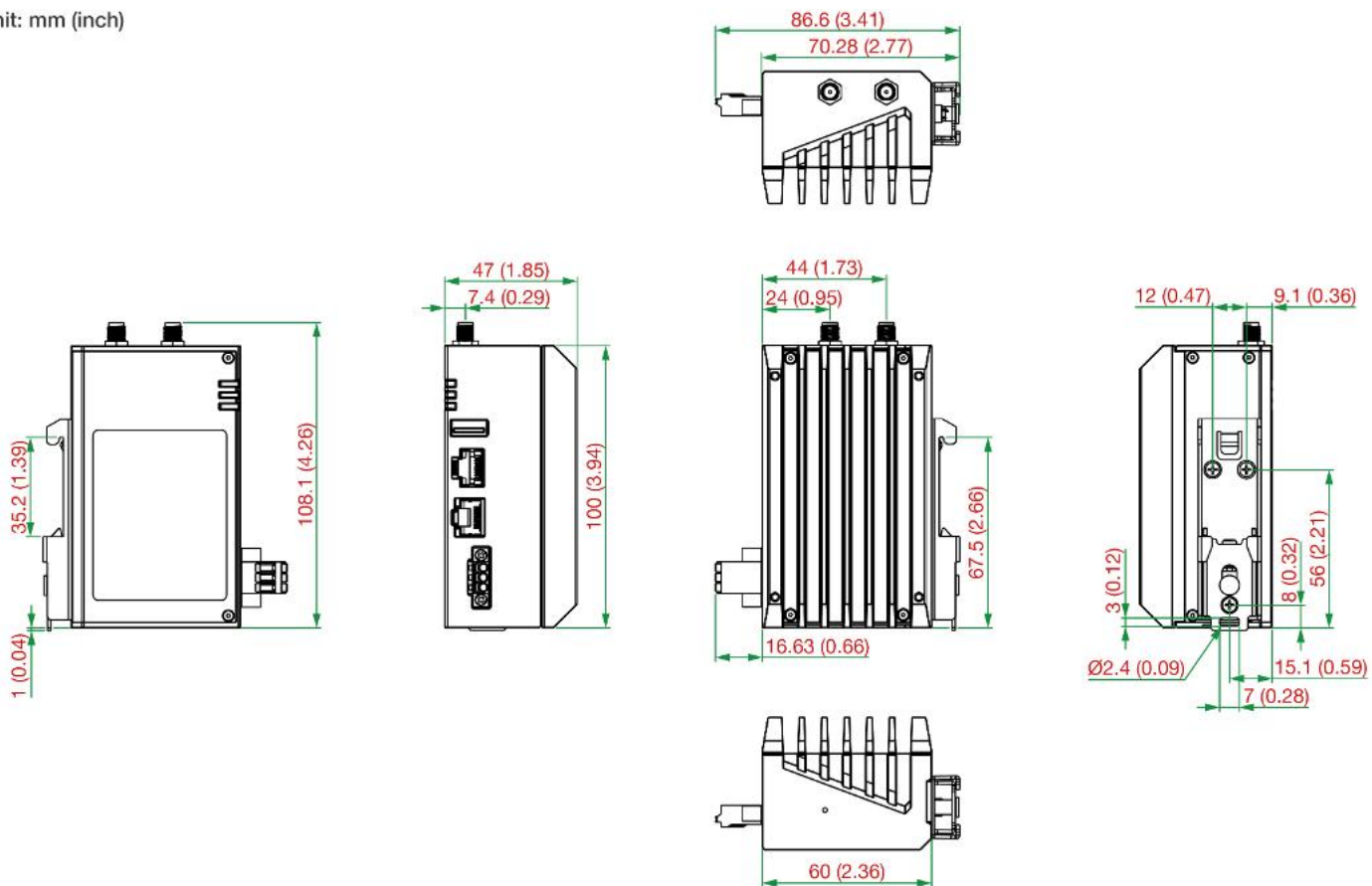
Standard Models

Unit: mm (inch)



Wide Temperature (-T) Models

Unit: mm (inch)



Ordering Information

Model Name	Band	Standards	Operating Temp.
AWK-1161C-UN	UN	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1161C-UN-T	UN	802.11ax (Wi-Fi 6)	-40 to 75°C
AWK-1161C-US	US	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1161C-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-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
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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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