

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 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: 2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) ¹ 5.500 to 5.700 GHz (11 channels) ¹ 5.745 to 5.825 GHz (5 channels)
Frequency Band for UN (20 MHz operating channels)	AWK-1165A-UN models only: 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) 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. 5.500 to 5.700 GHz (11 channels) ²
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2/WPA3-Personal
Transmission Rate	2.4 GHz: Up to 573.5 Mbps 5 GHz: Up to 1,201 Mbps
Transmitter Power for 802.11a (Dual Chain)	18±1.5 dBm @ 6 Mbps 18±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (5 GHz, Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS7 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS8 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS9 40 MHz 18±1.5 dBm @ MCS0 80 MHz 18±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11ax (Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 17±1.5 dBm @ MCS11 20 MHz 18±1.5 dBm @ MCS0 40 MHz 17±1.5 dBm @ MCS11 40 MHz 18±1.5 dBm @ MCS0 80 MHz 17±1.5 dBm @ MCS11 80 MHz
Transmitter Power for 802.11b (Dual Chain)	18±1.5 dBm @ 1 Mbps 18±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g (Dual Chain)	18±1.5 dBm @ 6 Mbps 18±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz, Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS7 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS8 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)	18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS11 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS11 40 MHz
Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -88 @ 6 Mbps Typ. -72 @ 54 Mbps
Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 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

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 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 (measured at 2.437 GHz)	Typ. -96 dBm @ 1 Mbps Typ. -88 dBm @ 11 Mbps
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
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	Access point Master 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)	5

Ethernet Software Features

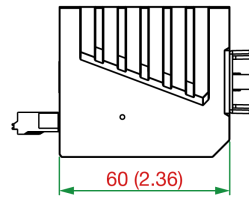
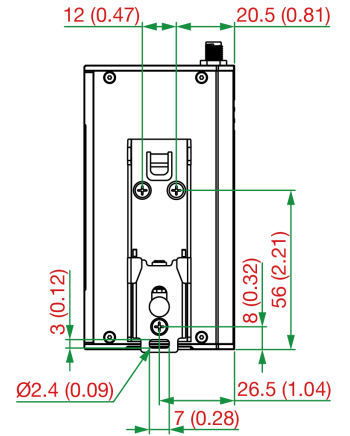
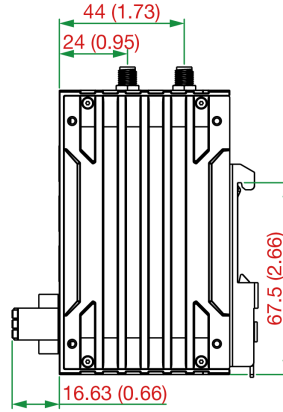
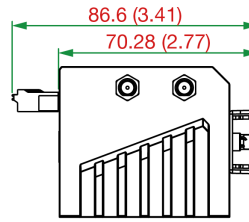
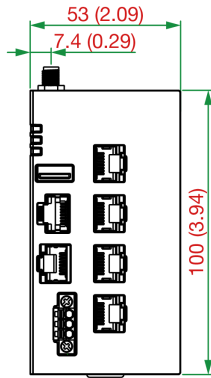
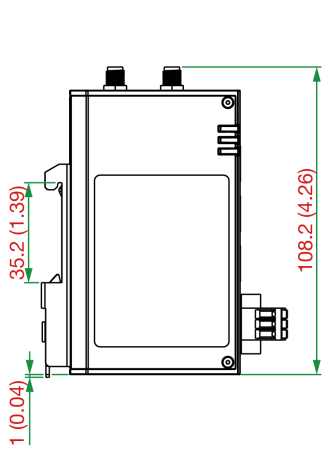
Management	DHCP Server DHCP Client DNS HTTP IPv4 LLDP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN MXconfig
Security	HTTPS/SSL RADIUS SSH Certificate Management
Time Management	SNTP Client
Firewall	
Filter	ICMP MAC address IP protocol Port-based Wi-Fi ACL Client Isolation
Serial Interface	
Console Port	RS-232 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) 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) AWK-1165A-T models: 516.5 g (1.14 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 62368-1 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, NBTC, IC
MTBF	
Time	4,002,106 hrs
Standards	Telcordia SR332
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty
Package Contents	
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 1 x warranty card

Dimensions

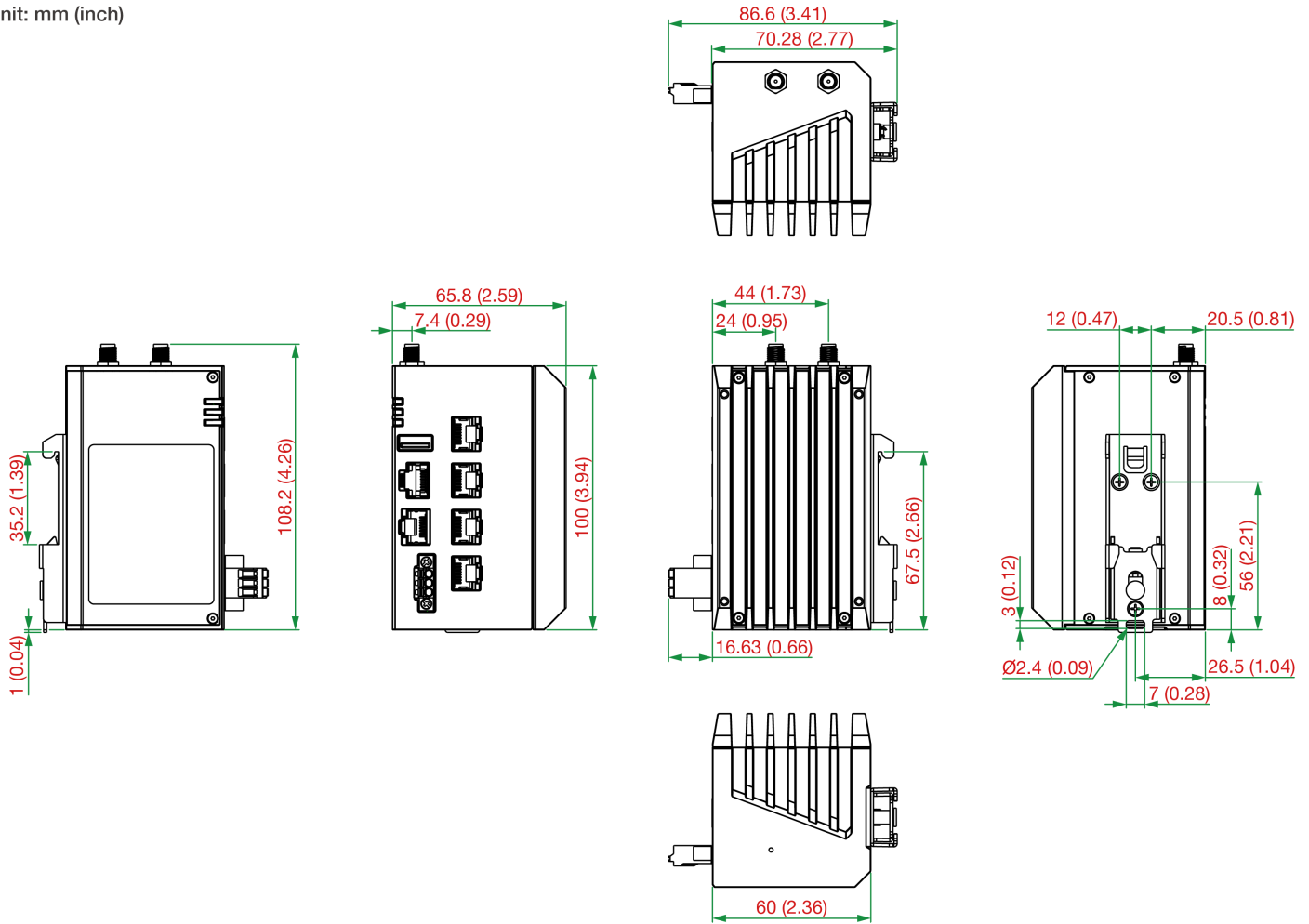
Standard Models

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
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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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