AWK-4121 Series

Industrial IEEE 802.11a/b/g IP68 wireless AP/bridge/client

- IEEE 802.11a/b/g compliant
- Redundant 24 VDC power inputs or PoE
- QoS (WMM) and VLAN for efficient network traffic
- Supports long-distance data transfer and 100 ms Turbo Roaming
- Compliant with essential sections of EN 50155
- Rugged IP68-rated housing and -40 to 75°C operating temperature

Turbo Roaming

EN 50155 EN 50121 cULus LISTED CE FC

Introduction

The AWK-4121 outdoor wireless AP/bridge/client is the ideal outdoor wireless solution for industrial applications that are hard to wire, too expensive to wire, or use mobile equipment that connect to a TCP/IP network. The AWK-4121's dust-tight/weatherproof design is IP68-rated, allowing you to extend existing wired networks to outdoor locations and critical environments. The two redundant DC power inputs increase the reliability of the power supply and can be powered via PoE for easier deployment. The AWK-4131 is compliant with the essential sections of EN 50155, covering operating temperature, power input voltage, surge, ESD and vibration. and with so many hardened industrial-grade features, you can rest assured that the AWK-4121 will provide stable and reliable wireless connectivity, even in the harshest locations.

Industrial and Outdoor Rated Features for Critical Environments

- IP68-rated metal housing and -40 to 75°C wide operating temperature
- Anti-vibration M12 design and waterproof/dust-tight RJ45 connectors
- PoE and dual DC power inputs

Specifications for Industrial-grade Applications

- Long-distance wireless transmission over 10 km
- Integrated DI/DO for on-site monitoring and warnings
- Status LED indicators for on-site monitoring and diagnosis

Specifications

WLAN Interface

Standards:
IEEE 802.11a/b/g for Wireless LAN
IEEE 802.11i for Wireless Security
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X)
IEEE 802.3af for Power-over-Ethernet
IEEE 802.1D for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1Q for VLAN
Spread Spectrum and Modulation (typical):
• DSSS with DBPSK, DQPSK, CCK
• OFDM with BPSK, QPSK, 16QAM, 64QAM
• 802.11b: CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 11 Mbps
• 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps
Operating Channels (central frequency):
US:
2.412 to 2.462 GHz (11 channels)
5.18 to 5.24 GHz (4 channels)
EU:
2.412 to 2.472 GHz (13 channels)
5.18 to 5.24 GHz (4 channels)
JP:
2.412 to 2.472 GHz (13 channels, OFDM)
2.412 to 2.484 GHz (14 channels, DSSS)
5.18 to 5.24 GHz (4 channels)
Security:
• SSID broadcast enable/disable
• Firewall for MAC/IP/Protocol/Port-based filtering
• 64-bit and 128-bit WEP encryption, WPA /WPA2 Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP and AES)
Transmission Rates:
802.11b: 1, 2, 5.5, 11 Mbps
802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
TX Transmit Power (for hardware revision 1.1):
802.11b:
Typ. 23±1.5 dBm @ 1 to 11 Mbps
802.11g:
Typ. 20±1.5 dBm @ 6 to 24 Mbps, Typ. 19±1.5 dBm @ 36 Mbps, Typ. 18±1.5 dBm @ 48 Mbps, Typ. 17±1.5 dBm @ 54 Mbps
802.11a:
Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps
RX Sensitivity (for hardware revision 1.1):
802.11b:
-97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps
802.11g:
-93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps

802.11a:
-90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps
TX Transmit Power (for hardware revision 1.0):
802.11b:
Typ. 18±1.5 dBm @ 1 to 11 Mbps
802.11g:
Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps
802.11a:
Typ. 16±1.5 dBm @ 6 to 24 Mbps, Typ. 14±1.5 dBm @ 36 to 48 Mbps, Typ. 13±1.5 dBm @ 54 Mbps
RX Sensitivity (for hardware revision 1.0):
802.11b:
-92 dBm @ 1 Mbps, -90 dBm @ 2 Mbps, -88 dBm @ 5.5 Mbps, -84 dBm @ 11 Mbps
802.11g:
-87 dBm @ 6 Mbps, -86 dBm @ 9 Mbps, -85 dBm @ 12 Mbps, -82 dBm @ 18 Mbps, -80 dBm @ 24 Mbps, -76 dBm @ 36 Mbps, -72 dBm @ 48 Mbps, -70 dBm @ 54 Mbps
802.11a:
-87 dBm @ 6 Mbps, -86 dBm @ 9 Mbps, -85 dBm @ 12 Mbps, -82 dBm @ 18 Mbps, -80 dBm @ 24 Mbps, -76 dBm @ 36 Mbps, -72 dBm @ 48 Mbps, -70 dBm @ 54 Mbps

Protocol Support

General Protocols: Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, PPPoE, DHCP
AP-only Protocols: ARP, BOOTP, DHCP, STP/RSTP (IEEE 802.1D/w)

Interface

Default Antennas: 2 dual-band omni-directional antennas, 5 dBi at 2.4 GHz, 2 dBi at 5 GHz, N-type (male)
Connector for External Antennas: N-type (female)
RJ45 Ports: 1, 10/100BaseT(X), auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Console Port: RS-232 (waterproof RJ45-type)
LED Indicators: PWR, FAULT, STATE, WLAN, LAN
Alarm Contact (digital output, M12 female connector): 1 relay output with current carrying capacity of 1 A @ 24 VDC
Digital Inputs (M12 female connector): 2 electrically isolated inputs
- +13 to +30 V for state "1"
- +3 to -30 V for state "0"
- Max. input current: 8 mA

Physical Characteristics

Housing: Metal, IP68 protection
Weight: 1.5 kg
Dimensions: 224 x 147.7 x 64.5 mm (8.82 x 5.82 x 2.54 in)
Installation: Wall mounting (standard), DIN-Rail mounting (optional), pole mounting (optional)

Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5% to 100% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC, redundant dual DC power inputs or 48 VDC Power-over-Ethernet (IEEE 802.3af compliant)
*Compliant with EN 50155 on 24 VDC
Connector: M12 male connector with A-coding
Power Consumption:
- 12 to 48 VDC, 0.121 to 0.494 A
- 24 VDC, 0.3 A

Reverse Polarity Protection: Present

Standards and Certifications

Safety: UL 60950-1, EN 60950-1
Hazardous Location: UL/cUL Class I Division 2, ATEX Zone 2
EMC: EN 301 489-1/17, FCC Part 15 Subpart B, EN 55022/55024
Radio: EN 300 328, EN 301 893, DSPR (Japan)
Rail Traffic: EN 50155, EN 50121-1/4
Note: Please check Moxa's website for the most up-to-date certification status.

Reliability

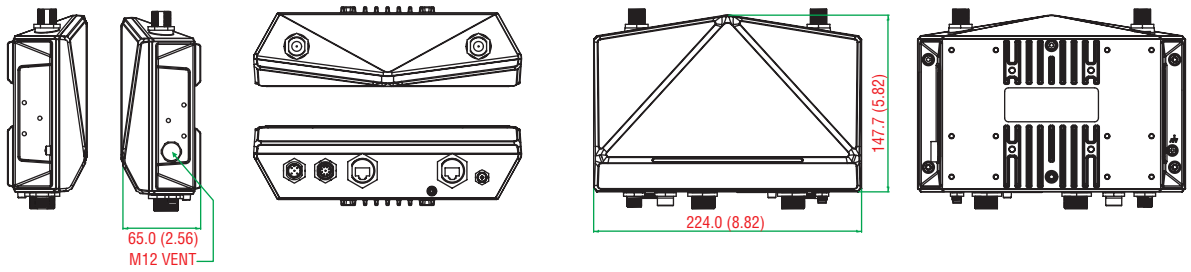
MTBF (mean time between failures): 364,564 hrs

Warranty

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

Dimensions

Unit: mm (inch)



Side Views | Top & Bottom Views | Front View | Rear View

Ordering Information

Available Models

AWK-4121-US-T: IEEE 802.11a/b/g IP68 wireless AP/bridge/client, US band, -40 to 75°C operating temperature
AWK-4121-EU-T: IEEE 802.11a/b/g IP68 wireless AP/bridge/client, EU band, -40 to 75°C operating temperature
AWK-4121-JP-T: IEEE 802.11a/b/g IP68 wireless AP/bridge/client, JP band, -40 to 75°C operating temperature
Note: Please visit Moxa's website for a complete list of optional wireless accessories and antennas available for Moxa's wireless products.

Package Checklist

- AWK-4121 wireless AP/bridge/client
- 2 omni-directional antennas (5/2 dBi, N-type male, 2.4/5 GHz)
- Wall mounting kit (includes 2 supports)
- Field-installable power plug
- Field-installable RJ45 plug
- Metal cap to cover M12-female connector
- Metal cap to cover RJ45 connector
- Transparent plastic sticks for field-installable plugs
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card