

# AWK-5222 Series

## Industrial IEEE 802.11a/b/g dual-radio wireless AP/bridge/client



- > IEEE 802.11a/b/g compliant
- > Dual-radio design: 2.4 GHz and/or 5 GHz RF bands
- > Supports 100 ms redundant roaming
- > Compliant with essential sections of EN 50155
- > -40 to 75°C operating temperature range (T models)



EN 50155



EN 50121



### Introduction

Moxa's wireless redundancy technology allows you to set up independent wireless connections to avoid interruptions in transmission, even if interference occurs on one of the supported frequencies. The AWK-5222 is equipped with the newest proprietary wireless redundancy technology, which has two independent RF modules, and supports a greater variety of wireless configurations and applications. The redundant wireless connections increase the reliability of the entire wireless network. The AWK-5222 is compliant with the essential sections of EN 50155, covering operating temperature, power input voltage, surge, ESD and vibration. The AWK-5222 is rugged enough to help you establish the most robust wireless connection for critical industrial wireless applications.

### Redundancy to Increase System Reliability

- Dual DC power inputs and PoE
- Dual-radio design with 2.4 and/or 5 GHz dual-band operation for redundant WLAN connections
- Redundant roaming for fast and stable handoff
- Ethernet redundancy via RSTP

### Specifications for Industrial-grade Applications

- Industrial-grade QoS and VLAN for efficient data traffic management
- Long-distance wireless transmission over 10 km
- Integrated DI/DO for on-site monitoring and warnings
- Signal strength LEDs for easy deployment and antenna alignment

### Specifications

#### WLAN Interface

##### Standards:

- IEEE 802.11a/b/g for Wireless LAN
- IEEE 802.11i for Wireless Security
- IEEE 802.3 for 10BaseT(X)
- 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  
64QAM @ 54 Mbps, 16QAM @ 24/36 Mbps, QPSK @ 12/18 Mbps,  
CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBSK @ 1 Mbps
- 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 for W52)

#### 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:

- 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:

- 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

## Protocol Support

**General Protocols:** Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, 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, 2 dBi, RP-SMA (male)

\*Only available with the AWK-5222 model

### Connector for External Antennas:

AWK-5222: RP-SMA (female)

AWK-5222-M12: QMA (female)

**RJ45 Ports:** 2, 10/100BaseT(X), auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection (AWK-5222 only)

**M12 Ports:** 2, 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection (AWK-5222-M12 only)

**Console Port:** RS-232 (RJ45-type)

**LED Indicators:** PWR1, PWR2, PoE, FAULT, STATE, WLAN1, WLAN2, 10M, 100M (TP port), LAN1, LAN2 (M12 port)

**Alarm Contact (digital output):** 1 relay output with current carrying capacity of 1 A @ 24 VDC

**Digital Inputs:** 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, IP30 protection

**Weight:** 1.1 kg

**Dimensions:** 62 x 135 x 105 mm (2.44 x 5.31 x 4.13 in)

**Installation:** DIN-Rail mounting (standard), Wall mounting (optional)

## 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:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5% to 95% (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:** 10-pin removable terminal block

**Power Consumption:** 12 to 48 VDC, 800 mA (max.)

**Reverse Polarity Protection:** Present

## Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1

**EMC:** EN 301 489-1/17, FCC Part 15 Subpart B, EN 55022/55024, IEC 61000-6-2/4

**Radio:** EN 300 328, EN 301 893

**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):**

AWK-5222: 291,367 hrs

## Warranty

**Warranty Period:** 5 years

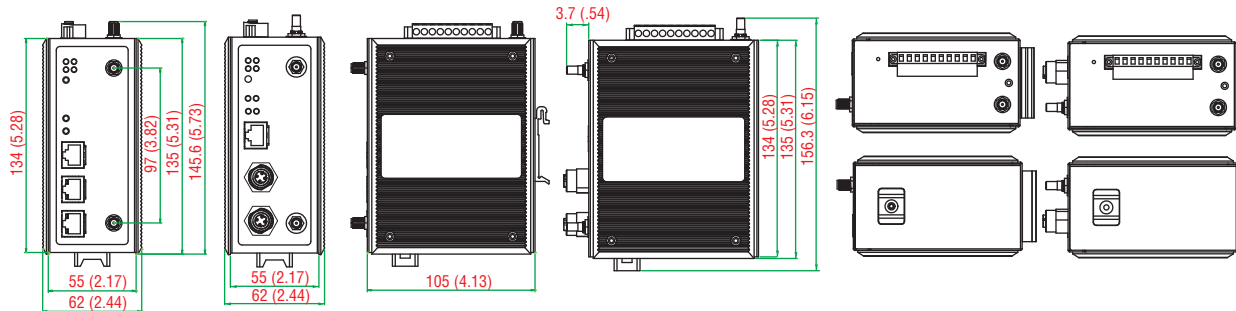
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Dimensions

AWK-5222

AWK-5222-M12

Unit: mm (inch)



Front Views

Side Views

Top & Bottom Views

## Ordering Information

Model Name	Available Models		Port Interface		Antenna Interface	
	Standard Temperature (-25 to 60°C)	Wide Temperature (-40 to 75°C)	2, 10/100BaseT(X)		RP-SMA	QMA
			RJ45	M12		
<b>AWK-5222</b>						
AWK-5222-US	✓	–	✓	–	✓	–
AWK-5222-EU	✓	–	✓	–	✓	–
AWK-5222-US-T	–	✓	✓	–	✓	–
AWK-5222-EU-T	–	✓	✓	–	✓	–
<b>AWK-5222-M12</b>						
AWK-5222-M12-US	✓	–	–	✓	–	✓
AWK-5222-M12-EU	✓	–	–	✓	–	✓
AWK-5222-M12-JP	✓	–	–	✓	–	✓
AWK-5222-M12-US-T	–	✓	–	✓	–	✓
AWK-5222-M12-EU-T	–	✓	–	✓	–	✓
AWK-5222-M12-JP-T	–	✓	–	✓	–	✓

Note:

US: USA band

EU: Europe band

JP: Japan band

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-5222 wireless AP/bridge/client
- Cable holder with one screw
- 2 plastic RJ45 protective caps for LAN & Console ports
- DIN-Rail kit
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Note: 2 dual-band omni-directional antennas are included with the AWK-5222 model.