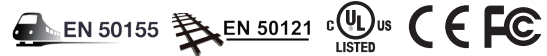


# AWK-3131 Series

## Industrial IEEE 802.11a/b/g/n wireless AP/bridge/client



- > IEEE 802.11a/b/g/n compliant
- > Up to 300 Mbps data rate
- > MIMO technology increases data throughput and range
- > Compliant with essential sections of EN 50155
- > M12 anti-vibration connectors (AWK-3131-M12)
- > -40 to 75°C operating temperature range (T models)



### Introduction

The AWK-3131 3-in-1 industrial wireless AP/bridge/client meets the growing need for faster data transmission speeds by supporting IEEE 802.11n technology with a net data rate of up to 300 Mbps. The AWK-3131 is compliant with the essential sections of EN 50155, covering operating temperature, power input voltage, surge, ESD and vibration. The two redundant DC power inputs increase the reliability of the power supply, and the AWK-3131 can be powered via PoE to make deployment easier. The AWK-3131 can operate on either the 2.4 or 5 GHz bands and is backwards-compatible with existing 802.11a/b/g deployments to future-proof your wireless investments.

### Improved Higher Data Rate and Bandwidth

- High-speed wireless connectivity with up to 300 Mbps data rate
- MIMO technology to improve the capability of transmitting and receiving multiple data streams
- Increased channel width with channel bonding technology

### Specifications for Industrial-grade Applications

- Industrial-grade QoS and VLAN for efficient data traffic management
- 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/n for Wireless LAN
- IEEE 802.11i for Wireless Security
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X)
- IEEE 802.3ab for 1000BaseT
- 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
- 802.11n: 64QAM @ 300 Mbps to BPSK @ 6.5 Mbps (multiple rates supported)

##### 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
- 802.11n: 6.5 to 300 Mbps (multiple rates supported)

##### TX Transmit Power:

- 802.11b:
  - 1 to 11 Mbps: Typ. 18 dBm (± 1.5 dBm)
- 802.11g:
  - 6 to 24 Mbps: Typ. 18 dBm (± 1.5 dBm)
  - 36 to 48 Mbps: Typ. 17 dBm (± 1.5 dBm)
  - 54 Mbps: Typ. 15 dBm (± 1.5 dBm)

##### 802.11a:

- 6 to 24 Mbps: Typ. 17 dBm (± 1.5 dBm)
- 36 to 48 Mbps: Typ. 16 dBm (± 1.5 dBm)
- 54 Mbps: Typ. 14 dBm (± 1.5 dBm)

##### TX Transmit Power MIMO:

- 802.11a/n (20/40 MHz):
  - MCS15 20 MHz: Typ. 13 dBm (± 1.5 dBm)
- 802.11g/n (20 MHz):
  - MCS15 20 MHz: Typ. 14 dBm (± 1.5 dBm)

##### RX Sensitivity:

- 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

**RX Sensitivity MIMO:**

802.11a/n:  
 -68 dBm @ MCS15 40 MHz,  
 -69 dBm @ MCS15 20 MHz,  
 -70 dBm @ MCS7 40 MHz,  
 -71 dBm @ MCS7 20 MHz  
 802.11g/n:  
 -69 dBm @ MCS15 20 MHz,  
 -71 dBm @ MCS7 20 MHz

**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-3131 model.

**Connector for External Antennas:**

AWK-3131: RP-SMA (female)  
 AWK-3131-M12: QMA (female)  
**RJ45 Ports:** 1, 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection (AWK-3131 only)  
**Fiber Ports:** 1, 1000BaseSFP slot (AWK-3131 only)  
**M12 Ports:** 1, 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection (AWK-3131-M12 only)  
**Console Port:** RS-232 (RJ45-type)  
**LED Indicators:** PWR1, PWR2, PoE, FAULT, STATE, signal strength, WLAN, LAN  
**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:** 970 g  
**Dimensions:** 53.6 x 135 x 105 mm (2.11 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, 700 mA  
**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  
**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):**  
 AWK-3131: 388,581 hrs

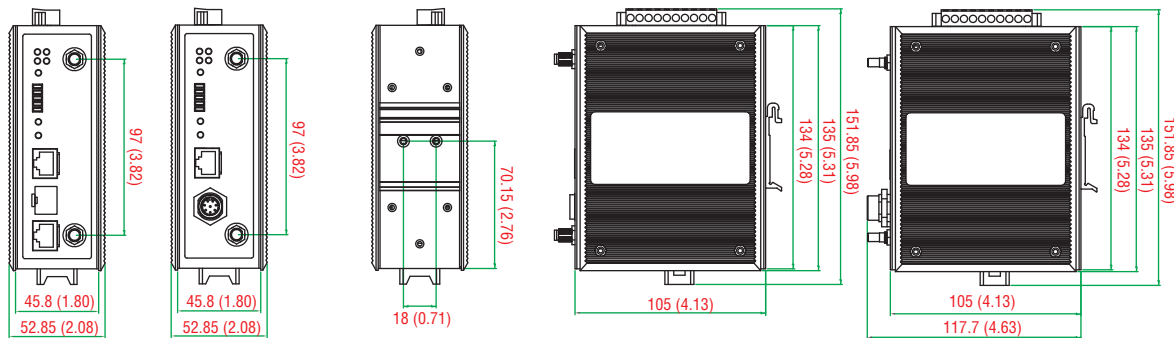
**Warranty**

**Warranty Period:** 5 years  
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

**Dimensions**

**AWK-3131 AWK-3131-M12**

Unit: mm (inch)



Front and Rear Views

Side Views

**Ordering Information**

Model Name	Available Model		Port Interface		Antenna Interface	
	Standard Temperature (-25 to 60°C)	Wide Temperature (-40 to 75°C)	Combo RJ45 & SFP 10/100/1000BaseT(X) or 1000BaseSFP	M12 10/100/1000BaseT(X)	RP-SMA	QMA
<b>AWK-3131</b>						
AWK-3131-US	✓	—	✓	—	✓	—
AWK-3131-EU	✓	—	✓	—	✓	—
AWK-3131-JP	✓	—	✓	—	✓	—
AWK-3131-US-T	—	✓	✓	—	✓	—
AWK-3131-EU-T	—	✓	✓	—	✓	—
AWK-3131-JP-T	—	✓	✓	—	✓	—
<b>AWK-3131-M12</b>						
AWK-3131-M12-US	✓	—	—	✓	—	✓
AWK-3131-M12-EU	✓	—	—	✓	—	✓
AWK-3131-M12-JP	✓	—	—	✓	—	✓
AWK-3131-M12-US-T	—	✓	—	✓	—	✓
AWK-3131-M12-EU-T	—	✓	—	✓	—	✓
AWK-3131-M12-JP-T	—	✓	—	✓	—	✓

Note:  
 US: USA band  
 EU: Europe band  
 JP: Japan band

**Package Checklist**

- AWK-3131 wireless AP/bridge/client
- Cable holder with one screw
- 2 plastic RJ45 protective caps
- 1 plastic SFP protective cap (AWK-3131 only)
- 1 plastic M12-female protective cap (AWK-3131-M12 only)
- DIN-rail kit
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card