AWK-1137C Series

Industrial 802.11a/b/g/n wireless client

- IEEE 802.11a/b/g/n compliant client
- Comprehensive interfaces with one serial port and two Ethernet LAN ports
- Client-based millisecond-level Turbo Roaming
- 2x2 MIMO future-proof technology
- Integrated robust antenna and power isolation
- Anti-vibration design
- Compact size for your industrial applications
- Easy setup, easy deployment with AeroMag

Introduction

The AWK-1137C is an ideal client solution for industrial wireless mobile applications. It enables WLAN connections for both Ethernet and serial devices, and is compliant with industrial standards and approvals covering operating temperature, power input voltage, surge, ESD, and vibration. The AWK-1137C 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.

Industrial Ruggedness

- Integrated antenna and power isolation designed to provide 500 V insulation protection against external electrical interference
- -40 to 75°C wide operating temperature models (-T) available for smooth wireless communication in harsh environments

Mobility-Oriented Design

- Client-based Turbo Roaming for < 150 ms roaming recovery time between APs
- MIMO technology to ensure transmitting and receiving capability while on the move
- Anti-vibration performance (with reference to IEC 60068-2-6)

Easy Integration

- Semi-automatically configurable to reduce deployment cost
- AeroMag support for error-free setup of your industrial applications' fundamental WLAN settings
- Various communication interfaces for connecting to different types of devices
- One-to-many NAT to simplify your machine setup

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)
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 @ 1 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)
5.180 to 5.240 GHz (4 channels)
5.745 to 5.825 GHz (5 channels)
5.260 to 5.320 GHz (4 channels)
5.500 to 5.700 GHz (11 channels)
EU:
2.412 to 2.472 GHz (13 channels)
5.180 to 5.240 GHz (4 channels)
5.260 to 5.320 GHz (4 channels)
5.500 to 5.700 GHz (11 channels)
JP:
2.412 to 2.484 GHz (14 channels, DSSS)
5.180 to 5.240 GHz (4 channels)
5.260 to 5.320 GHz (4 channels)
5.500 to 5.700 GHz (11 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
802.11n: 6.5 to 300 Mbps (multiple rates supported)

TX Transmit Power:
802.11b:
Typ. 26±1.5 dBm @ 1 Mbps, Typ. 26±1.5 dBm @ 2 Mbps
Typ. 26±1.5 dBm @ 5.5 Mbps, Typ. 25±1.5 dBm @ 11 Mbps
802.11g:
Typ. 23±1.5 dBm @ 6 to 24 Mbps, Typ. 22±1.5 dBm @ 36 Mbps
Typ. 20±1.5 dBm @ 48 Mbps, Typ. 19±1.5 dBm @ 54 Mbps
802.11n (2.4 GHz):
Typ. 23±1.5 dBm @ MCS0/8 20 MHz
Typ. 17±1.5 dBm @ MCS7/15 20 MHz
Typ. 23±1.5 dBm @ MCS0/8 40 MHz
Typ. 17±1.5 dBm @ MCS7/15 40 MHz
802.11a:
Typ. 23±1.5 dBm @ 6 to 24 Mbps
Typ. 21±1.5 dBm @ 36 Mbps
Typ. 20±1.5 dBm @ 48 Mbps,
Typ. 18±1.5 dBm @ 54 Mbps
802.11n (5 GHz):
Typ. 23±1.5 dBm @ MCS0/8 20 MHz
Typ. 18±1.5 dBm @ MCS7/15 20 MHz
Typ. 23±1.5 dBm @ MCS0/8 40 MHz,
Typ. 18±1.5 dBm @ MCS7/15 40 MHz
Note: Based on regional regulations, the maximum transmission power allowed on the UNII bands is restricted in the firmware, as indicated below:

	US	EU	JP
2.4 GHz	26 dBm	18 dBm	18 dBm
5 GHz (UNII-1)	23 dBm	23 dBm	23 dBm
5 GHz (UNII-2)	23 dBm	23 dBm	23 dBm
5 GHz (UNII-2e)	23 dBm	23 dBm	23 dBm
5 GHz (UNII-3)	23 dBm	–	–

RX Receive Sensitivity:
802.11b:
-89 dBm @ 1 Mbps, -89 dBm @ 2 Mbps
-89 dBm @ 5.5 Mbps, -88 dBm @ 11 Mbps
802.11g:
-88 dBm @ 6 Mbps, -88 dBm @ 9 Mbps
-88 dBm @ 12 Mbps, -87 dBm @ 18 Mbps
-84 dBm @ 24 Mbps, -81 dBm @ 36 Mbps
-77 dBm @ 48 Mbps, -75 dBm @ 54 Mbps
802.11n (2.4 GHz):
-70 dBm @ MCS7 20 MHz, -70 dBm @ MCS15 20 MHz
-64 dBm @ MCS7 40 MHz, -65 dBm @ MCS15 40 MHz
802.11a:
-90 dBm @ 6 Mbps, -88 dBm @ 9 Mbps
-87 dBm @ 12 Mbps, -85 dBm @ 18 Mbps
-81 dBm @ 24 Mbps, -78 dBm @ 36 Mbps
-74 dBm @ 48 Mbps, -73 dBm @ 54 Mbps
802.11n (5 GHz):
-69 dBm @ MCS7 20 MHz, -70 dBm @ MCS15 20 MHz
-64 dBm @ MCS7 40 MHz, -66 dBm @ MCS15 40 MHz

Protocol Support
General Protocols: Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, DHCP, VLAN

Interface
Default Antennas: 2 dual-band omni-directional antennas, 2 dBi, RP-SMA (male)
LAN Ports: 2, RJ45, 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Serial Port: 1, RS232/422/485, DB9 male connector
Reset: Present
LED Indicators: SYS, WLAN, LAN1, LAN2, Serial
Connector for External Antennas: RP-SMA (female)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
Baudrate: 75 bps to 921.6 kbps
Serial Data Log: 256 KB

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DCD, GND
RS-422: Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w: Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w: Data+, Data-, GND

Management
Serial Operation Modes: Real COM, RCF2217, TCP Server, TCP Client, UDP
Device Management: Wireless Search Utility, MXconfig, SNMP
Network Monitoring: MXview

Physical Characteristics
Housing: Metal casing for high EMC-levels; provides IP30 protection
Weight: 470 g (1.03 lb)
Dimensions: 77.1 x 115.5 x 26 mm (3.035 x 4.55 x 1.024 in)
Installation: DIN-rail mounting (standard), wall mounting (with optional kit)

Environmental Limits
Operating Temperature:
Standard Models: 0 to 60°C (32 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: 9 to 30 VDC, redundant dual DC power inputs
Connector: 3-pin removable terminal block, 500 V insulation
Power Consumption: 11.7 W
Reverse Polarity Protection: Present

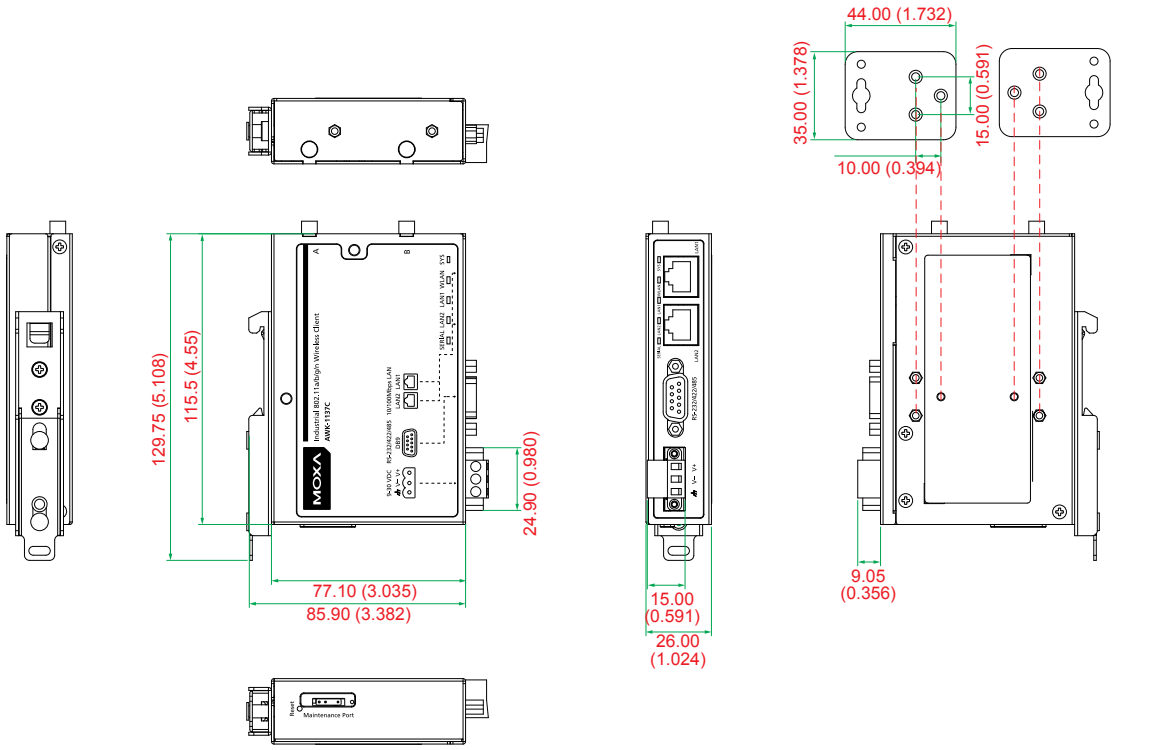
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55032/55024, EN 61000-6-2/6-4
EMI: FCC Part 15B
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 10 V
IEC 61000-4-8
Radio: FCC ID SLE-1137C, MIC, RED, NCC, KC, RCM, ANATEL, EAC, WPC
Vehicle: E-Mark E1
Note: Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)
Time: 1,125,942 hrs
Standard: Telcordia SR332

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

AWK-1137C-US: Industrial 802.11a/b/g/n wireless serial/Ethernet client, US band, 0 to 60°C
AWK-1137C-US-T: Industrial 802.11a/b/g/n sireless serial/Ethernet client, US band, -40 to 75°C
AWK-1137C-EU: Industrial 802.11a/b/g/n wireless serial/Ethernet client, EU band, 0 to 60°C
AWK-1137C-EU-T: Industrial 802.11a/b/g/n wireless serial/Ethernet Client, EU band, -40 to 75°C
AWK-1137C-JP: Industrial 802.11a/b/g/n wireless serial/Ethernet client, JP band, 0 to 60°C
AWK-1137C-JP-T: Industrial 802.11a/b/g/n wireless serial/Ethernet client, JP band, -40 to 75°C
Note: Please visit Moxa's website for a complete list of optional wireless accessories and antennas available for Moxa's wireless products.

Optional Accessories (can be purchased separately)

WK-35-01: Wall-mounting kit with 2 plates and 6 screws

Package Checklist

- AWK-1137c wireless serial Ethernet/client
- 2 x 2.4/5 GHz antennas: ANT-WDB-ARM-0202
- DIN-rail kit
- Quick installation guide (printed)
- Warranty card