

# AWK-1137C Series

## Industrial 802.11a/b/g/n wireless client



### Features and Benefits

- IEEE 802.11a/b/g/n compliant client
- Comprehensive interfaces with one serial port and two Ethernet LAN ports
- Millisecond-level Client-based Turbo Roaming<sup>1</sup>
- 2x2 MIMO future-proof technology
- Integrated robust antenna and power isolation
- Anti-vibration design
- Compact size for your industrial applications
- Easy setup and deployment with AeroMag

### Certifications



## 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<sup>1</sup> 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' basic WLAN settings
- Various communication interfaces for connecting to different types of devices
- One-to-many NAT to simplify your machine setup

## Specifications

### WLAN Interface

WLAN Standards	802.11a/b/g/n 802.11i Wireless Security
Modulation Type	DSSS MIMO-OFDM OFDM
Frequency Band for US (20 MHz operating channels)	2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) <sup>2</sup>

1. The Turbo Roaming recovery time indicated herein is an average of test results documented, in optimized conditions, across APs configured with interference-free 20-MHz RF channels, WPA2-PSK security, and default Turbo Roaming parameters. The clients are configured with 3-channel roaming at 100 Kbps traffic load. Other conditions may also impact roaming performance. For more information about Turbo Roaming parameter settings, refer to the product manual.
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.

	5.500 to 5.700 GHz (11 channels) <sup>3</sup> 5.745 to 5.825 GHz (5 channels)																								
Frequency Band for EU (20 MHz operating channels)	2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) <sup>3</sup> 5.500 to 5.700 GHz (11 channels) <sup>3</sup>																								
Frequency Band for JP (20 MHz operating channels)	2.412 to 2.484 GHz (14 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels) <sup>3</sup> 5.500 to 5.700 GHz (11 channels) <sup>3</sup>																								
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2-Personal																								
Transmission Rate	802.11b: 1 to 11 Mbps 802.11a/g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps																								
Transmitter Power for 802.11a	23±1.5 dBm @ 6 to 24 Mbps 21±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 18±1.5 dBm @ 54 Mbps																								
Transmitter Power for 802.11b	26±1.5 dBm @ 1 Mbps 26±1.5 dBm @ 2 Mbps 26±1.5 dBm @ 5.5 Mbps 25±1.5 dBm @ 11 Mbps																								
Transmitter Power for 802.11g	23±1.5 dBm @ 6 to 24 Mbps 22±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 19±1.5 dBm @ 54 Mbps																								
Transmitter Power for 802.11n (2.4 GHz)	23±1.5 dBm @ MCS0/8 20 MHz 17±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 17±1.5 dBm @ MCS7/15 40 MHz																								
Transmitter Power for 802.11n (5 GHz)	23±1.5 dBm @ MCS0/8 20 MHz 18±1.5 dBm @ MCS7/15 20 MHz 23±1.5 dBm @ MCS0/8 40 MHz 18±1.5 dBm @ MCS7/15 40 MHz																								
Transmitter Power	<table border="1"> <thead> <tr> <th></th> <th>US</th> <th>EU</th> <th>JP</th> </tr> </thead> <tbody> <tr> <td>2.4 GHz</td> <td>26 dBm</td> <td>18 dBm</td> <td>18 dBm</td> </tr> <tr> <td>5 GHz (UNII-1)</td> <td>23 dBm</td> <td>23 dBm</td> <td>23 dBm</td> </tr> <tr> <td>5 GHz (UNII-2)</td> <td>23 dBm</td> <td>23 dBm</td> <td>23 dBm</td> </tr> <tr> <td>5 GHz (UNII-2e)</td> <td>23 dBm</td> <td>23 dBm</td> <td>23 dBm</td> </tr> <tr> <td>5 GHz (UNII-3)</td> <td>23 dBm</td> <td>–</td> <td>–</td> </tr> </tbody> </table> <p>Note: Based on regional regulations, the maximum transmission power allowed on the UNII bands is restricted in the firmware, as indicated above.</p>		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	–	–
	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	–	–																						
Receiver Sensitivity for 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																								

3. 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.

	-73 dBm @ 54 Mbps
Receiver Sensitivity for 802.11b	-89 dBm @ 1 Mbps -89 dBm @ 2 Mbps -89 dBm @ 5.5 Mbps -88 dBm @ 11 Mbps
Receiver Sensitivity for 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
Receiver Sensitivity for 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
Receiver Sensitivity for 802.11n (5 GHz)	-69 dBm @ MCS7 20 MHz -70 dBm @ MCS15 20 MHz -64 dBm @ MCS7 40 MHz -66 dBm @ MCS15 40 MHz
WLAN Operation Mode	Client, Client-Router, Slave, Sniffer
Antenna	External, 2/2 dBi, Omni-directional, 2 RP-SMA male
Antenna Connectors	2 RP-SMA female
<b>Ethernet Interface</b>	
10/100BaseT(X) Ports (RJ45 connector)	2
Standards	IEEE 802.1Q for VLAN Tagging IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X)
<b>Ethernet Software Features</b>	
Management	DHCP Server/Client, HTTP, IPv4, LLDP, SMTP, SNMPv1/v2c/v3, Syslog, TCP/IP, Telnet, UDP, Proxy ARP, Wireless Search Utility, VLAN, MXview, MXconfig
Security	HTTPS/SSL, RADIUS, SSH
Time Management	NTP Client, SNTP Client
<b>Firewall</b>	
Filter	ICMP, MAC address, IP protocol, Port-based
<b>Serial Interface</b>	
Connector	DB9 male
Serial Standards	RS-232, RS-422/485, RS-232/422/485
Operation Modes	Disabled, Real COM, RFC2217, TCP Client, TCP Server, UDP
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	None, RTS/CTS, XON/XOFF

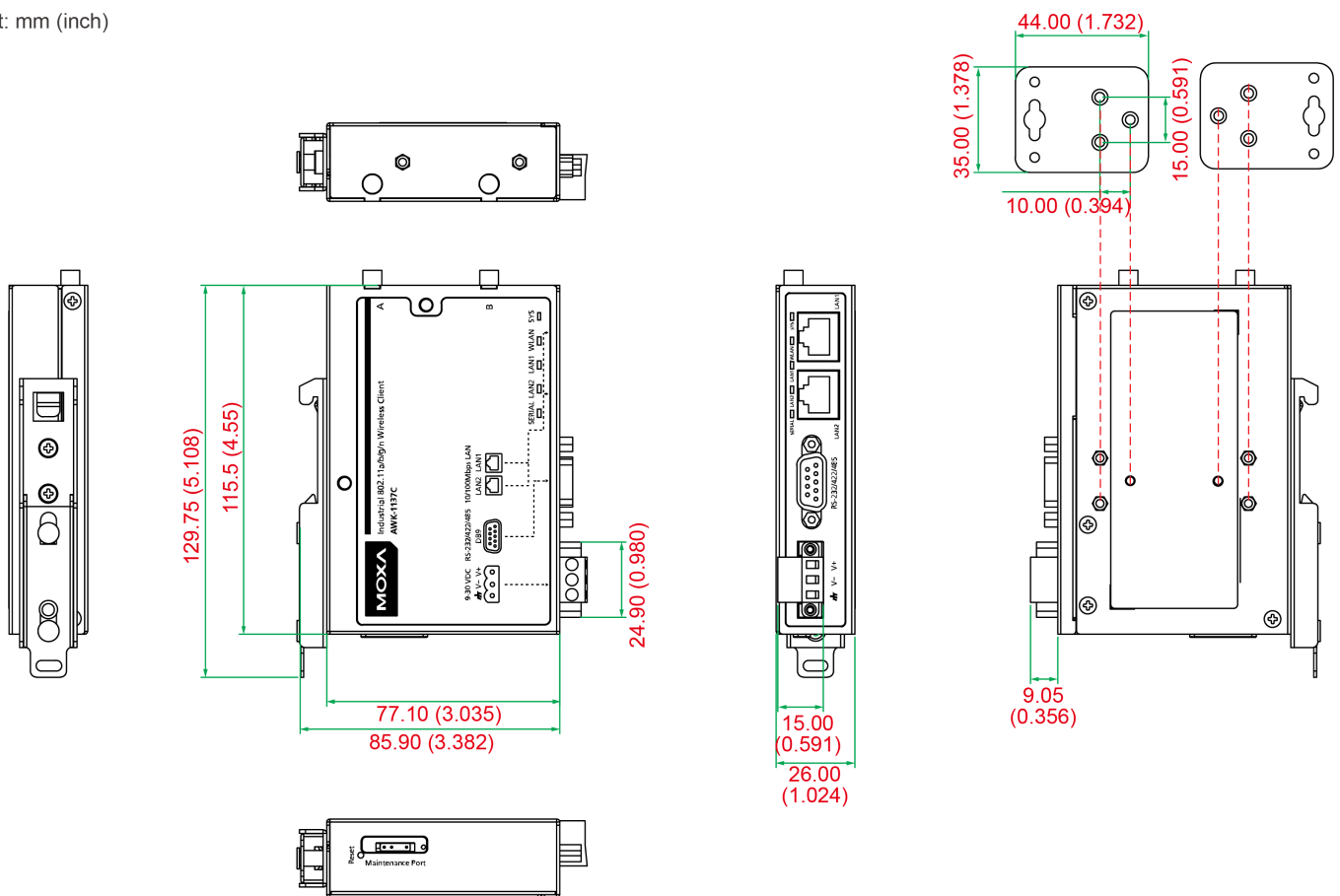
Baudrate	75 bps to 921.6 kbps
Serial Data Log	256 KB
<b>Serial Signals</b>	
RS-232	TxD, RxD, RTS, CTS, DCD, GND, DTR, DSR
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND
<b>LED Interface</b>	
LED Indicators	SYS, LAN1, LAN2, WLAN, Serial
<b>Input/Output Interface</b>	
Buttons	Reset button
<b>Physical Characteristics</b>	
Housing	Metal
IP Rating	IP30
Dimensions	77.1 x 115.5 x 26 mm (3.035 x 4.55 x 1.024 in)
Weight	470 g (1.03 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)
<b>Power Parameters</b>	
Input Voltage	9 to 30 VDC
Power Connector	1 removable 3-contact terminal block(s)
Power Consumption	11.7 W (max.)
Reverse Polarity Protection	Supported
<b>Environmental Limits</b>	
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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
<b>Standards and Certifications</b>	
EMC	EN 61000-6-2/-6-4, EN 55032/24
EMI	CISPR 22, 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 IEC 61000-4-8 PFMF
Radio	ANATEL, EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-1137C, MIC, NCC, SRRRC, WPC, KC, RCM
Road Vehicles	E mark E1

Safety	EN 60950-1, UL 60950-1
Vibration	IEC 60068-2-6
MTBF	
Time	1,125,942 hrs
Standards	Telcordia SR332
Warranty	
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

Package Contents	
Device	1 x AWK-1137C Series wireless client
Antenna	2 x 2.4/5 GHz antenna
Installation Kit	1 x DIN-rail kit
Documentation	1 x quick installation guide 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	Band	Standards	Operating Temp.
AWK-1137C-EU	EU	802.11a/b/g/n	0 to 60°C
AWK-1137C-EU-T	EU	802.11a/b/g/n	-40 to 75°C
AWK-1137C-JP	JP	802.11a/b/g/n	0 to 60°C
AWK-1137C-JP-T	JP	802.11a/b/g/n	-40 to 75°C
AWK-1137C-US	US	802.11a/b/g/n	0 to 60°C
AWK-1137C-US-T	US	802.11a/b/g/n	-40 to 75°C

## Accessories (sold separately)

### Antennas

ANT-WDB-ANF-0407	2.4/5 GHz, omni-directional antenna, 4/7 dBi, N-type (male)
ANT-WDB-ANF-0609	2.4/5 GHz, omni-directional antenna, 6/9 dBi, N-type (female)
ANT-WDB-ANM-0306	2.4/5 GHz, omni-directional antenna, 3/6 dBi, N-type (male)
ANT-WDB-ANM-0407	2.4/5 GHz, dual-band omni-directional antenna, 4/7 dBi, N-type (male)
ANT-WDB-ANM-0502	2.4/5 GHz, omni-directional antenna, 5/2 dBi, N-type (male)
ANT-WDB-ANM-0609	2.4/5 GHz, omni-directional antenna, 6/9 dBi, N-type (male)
ANT-WDB-ARM-02	2.4/5 GHz, omni-directional rubber duck antenna, 2 dBi, RP-SMA (male)
ANT-WDB-ARM-0202	2.4/5 GHz, panel antenna, 2/2 dBi, RP-SMA (male)
ANT-WDB-PNF-1518	2.4/5 GHz, panel antenna, 15/18 dBi, N-type (female)
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-WSB5-ANF-12	5 GHz, omni-directional antenna, 12 dBi, N-type (female)
ANT-WSB5-PNF-18	5 GHz, directional panel antenna, 18 dBi, N-type (female)
ANT-WSB-ANF-09	2.4 GHz, omni-directional antenna, 9 dBi, N-type (female)
ANT-WSB-PNF-12	2.4 GHz, directional panel antenna, 12dBi, N-type (female)
ANT-WSB-PNF-18	2.4 GHz, directional panel antenna, 18 dBi, N-type (female)
ANT-WSB-AHRM-05-1.5m	2.4 GHz, omni-directional/dipole antenna, 5 dBi, RP-SMA (male), 1.5 m cable

### Wireless Adaptors

A-ADP-RJ458P-DB9F-ABC01	DB9 female to RJ45 connector for the ABC-01
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### Wireless Antenna Cable

A-CRF-RFRM-R4-150	RF magnetic stand, RP-SMA (male) to RP-SMA (female), RG-174/U cable, 1.5 m
A-CRF-RFRM-S2-60	SS402 cable, RP-SMA (male) to RP-SMA (female)
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
CRF-N0117SA-3M	N-type (male) to RP SMA (male), CFD200 cable, 3 m

### Surge Arrestor

A-SA-NFNF-01	Surge arrester, N-type (female) to N-type (female)
A-SA-NMNF-01	Surge arrester, N-type (female) to N-type (male)

## Wireless Terminating Resistor

A-TRM-50-RM

Termination resistor, 50 ohms, N-type male

## Wall-Mounting Kits

WK-35-01

Wall-mounting kit, 2 plates, 6 screws, 35 x 44 x 2.5 mm

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