AWK-3251A-RCCシリーズ

鉄道車両向けのWi-Fi 5（802.11ac）IP30無線AP/クライアント

機能とメリット

- 最大1.267 Gbpsのデータレートを備えた同時デュアルバンドWi-Fi
- 最大120台の同時接続とクライアント分離機能をサポート
- 車両間ワイヤレス接続を実現する車両間自動接続（ACC）機能
- 150 ms未満のクライアントベースTurbo Roamingにより、シームレスなデータオフロードを実現

認証

c UL us LISTED　CE　FC　EN 50155

製品紹介

AWK-3251A-RCCシリーズは、鉄道車載用に設計されたIP30保護等級のWi-Fi 5（802.11ac）AP/クライアントであり、車両間バックボーンネットワークや車載乗客向けインフォテインメントシステムなどの専用アプリケーションに信頼性の高いソリューションを提供します。車両間自動接続（ACC）機能により、導入の簡素化を可能にし、無線車両間バックボーンネットワークの信頼性を高めます。また、乗客Wi-Fiサービス向けに最適化されており、2.4/5 GHz同時デュアルバンド接続、最大120台のクライアント接続、および最大1.267 Gbpsのデータレートをサポートします。さらに、PoE給電が可能なため、設置が容易で柔軟な導入が実現できます。

仕様

WLAN Interface

WLAN Standards	2.4 GHz: 802.11b/g/n with 256 QAM support 5 GHz: 802.11a/n/ac Wave 2 with 256 QAM support
Frequency Band for US (20 MHz operating channels)	AWK-3251A-RCC-US models only: 2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)[1] 5.500 to 5.700 GHz (11 channels)[1] 5.745 to 5.825 GHz (5 channels)
Frequency Band for UN (20 MHz operating channels)	AWK-3251A-RCC-UN models only: 2.412 to 2.472 GHz (13 channels) 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)[1] 5.500 to 5.700 GHz (11 channels)[1] 5.745 to 5.825 GHz (5 channels) Available channels change depending on the selected country or region code.
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2/WPA3-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2/WPA3-Personal
Transmission Rate	2.4 GHz: 802.11b: 1 to 11 Mbps 802.11g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 5 GHz: 802.11a: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: 6.5 to 867 Mbps

1. DFS（Dynamic Frequency Selection/動的周波数選択）チャネル対応：APモードでは、レーダー信号が検出された場合、自動的に別のチャネルへ切り替わります。ただし、規制により、チャネル切り替え後、サービス開始前には60秒間の利用可能性確認期間が必要です。

Transmitter Power for 802.11a	22±1.5 dBm @ 6 Mbps 22±1.5 dBm @ 9 Mbps 22±1.5 dBm @ 12 Mbps 20.5±1.5 dBm @ 18 Mbps 20.5±1.5 dBm @ 24 Mbps 20.5±1.5 dBm @ 36 Mbps 20±1.5 dBm @ 48 Mbps 20±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (5 GHz)	22±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS1 20 MHz 22±1.5 dBm @ MCS2 20 MHz 20±1.5 dBm @ MCS3 20 MHz 19.5±1.5 dBm @ MCS4 20 MHz 19.5±1.5 dBm @ MCS5 20 MHz 19.5±1.5 dBm @ MCS6 20 MHz 19±1.5 dBm @ MCS7 20 MHz 22±1.5 dBm @ MCS8 20 MHz 22±1.5 dBm @ MCS9 20 MHz 22±1.5 dBm @ MCS10 20 MHz 20±1.5 dBm @ MCS11 20 MHz 19.5±1.5 dBm @ MCS12 20 MHz 19.5±1.5 dBm @ MCS13 20 MHz 19.5±1.5 dBm @ MCS14 20 MHz 19±1.5 dBm @ MCS15 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS1 40 MHz 21±1.5 dBm @ MCS2 40 MHz 19.5±1.5 dBm @ MCS3 40 MHz 19±1.5 dBm @ MCS4 40 MHz 19±1.5 dBm @ MCS5 40 MHz 19.5±1.5 dBm @ MCS6 40 MHz 19±1.5 dBm @ MCS7 40 MHz 21±1.5 dBm @ MCS8 40 MHz 21±1.5 dBm @ MCS9 40 MHz 21±1.5 dBm @ MCS10 40 MHz 19.5±1.5 dBm @ MCS11 40 MHz 19±1.5 dBm @ MCS12 40 MHz 19±1.5 dBm @ MCS13 40 MHz 19±1.5 dBm @ MCS14 40 MHz 19±1.5 dBm @ MCS15 40 MHz
Transmitter Power for 802.11ac (5 GHz, Dual Chain)	21.5±1.5 dBm @ MCS0 20 MHz 21.5±1.5 dBm @ MCS1 20 MHz 21±1.5 dBm @ MCS2 20 MHz 20±1.5 dBm @ MCS3 20 MHz 19.5±1.5 dBm @ MCS4 20 MHz 19.5±1.5 dBm @ MCS5 20 MHz 19.5±1.5 dBm @ MCS6 20 MHz 19±1.5 dBm @ MCS7 20 MHz 19±1.5 dBm @ MCS8 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS1 40 MHz 21±1.5 dBm @ MCS2 40 MHz 19.5±1.5 dBm @ MCS3 40 MHz 19±1.5 dBm @ MCS4 40 MHz 19±1.5 dBm @ MCS5 40 MHz 19±1.5 dBm @ MCS6 40 MHz 19±1.5 dBm @ MCS7 40 MHz 18.5±1.5 dBm @ MCS8 40 MHz 18±1.5 dBm @ MCS9 40 MHz 20±1.5 dBm @ MCS0 80 MHz 20±1.5 dBm @ MCS1 80 MHz 20±1.5 dBm @ MCS2 80 MHz 17±1.5 dBm @ MCS3 80 MHz 17±1.5 dBm @ MCS4 80 MHz 17±1.5 dBm @ MCS5 80 MHz 17±1.5 dBm @ MCS6 80 MHz 17±1.5 dBm @ MCS7 80 MHz 17±1.5 dBm @ MCS8 80 MHz 17±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11b	25.5±1.5 dBm @ 1 Mbps

	25.5±1.5 dBm @ 2 Mbps 26±1.5 dBm @ 5.5 Mbps 26±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g	26±1.5 dBm @ 6 Mbps 26±1.5 dBm @ 9 Mbps 26±1.5 dBm @ 12 Mbps 25±1.5 dBm @ 18 Mbps 25±1.5 dBm @ 24 Mbps 24.5±1.5 dBm @ 36 Mbps 23.5±1.5 dBm @ 48 Mbps 23±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz)	24.5±1.5 dBm @ MCS0 20 MHz 24.5±1.5 dBm @ MCS1 20 MHz 24±1.5 dBm @ MCS2 20 MHz 24±1.5 dBm @ MCS3 20 MHz 23.5±1.5 dBm @ MCS4 20 MHz 23.5±1.5 dBm @ MCS5 20 MHz 22.5±1.5 dBm @ MCS6 20 MHz 22±1.5 dBm @ MCS7 20 MHz 24±1.5 dBm @ MCS8 20 MHz 24.5±1.5 dBm @ MCS9 20 MHz 24±1.5 dBm @ MCS10 20 MHz 24±1.5 dBm @ MCS11 20 MHz 23.5±1.5 dBm @ MCS12 20 MHz 23±1.5 dBm @ MCS13 20 MHz 22±1.5 dBm @ MCS14 20 MHz 21.5±1.5 dBm @ MCS15 20 MHz 24±1.5 dBm @ MCS0 40 MHz 24±1.5 dBm @ MCS1 40 MHz 24±1.5 dBm @ MCS2 40 MHz 24±1.5 dBm @ MCS3 40 MHz 23.5±1.5 dBm @ MCS4 40 MHz 23.5±1.5 dBm @ MCS5 40 MHz 22.5±1.5 dBm @ MCS6 40 MHz 22±1.5 dBm @ MCS7 40 MHz 24±1.5 dBm @ MCS8 40 MHz 24±1.5 dBm @ MCS9 40 MHz 24±1.5 dBm @ MCS10 40 MHz 24±1.5 dBm @ MCS11 40 MHz 23.5±1.5 dBm @ MCS12 40 MHz 23±1.5 dBm @ MCS13 40 MHz 22.5±1.5 dBm @ MCS14 40 MHz 21.5±1.5 dBm @ MCS15 40 MHz
Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)	25±1.5 dBm @ MCS0 20 MHz 25±1.5 dBm @ MCS1 20 MHz 25±1.5 dBm @ MCS2 20 MHz 25±1.5 dBm @ MCS3 20 MHz 24±1.5 dBm @ MCS4 20 MHz 23.5±1.5 dBm @ MCS5 20 MHz 22.5±1.5 dBm @ MCS6 20 MHz 22±1.5 dBm @ MCS7 20 MHz 21.5±1.5 dBm @ MCS8 20 MHz 25±1.5 dBm @ MCS0 40 MHz 25±1.5 dBm @ MCS1 40 MHz 25±1.5 dBm @ MCS2 40 MHz 25±1.5 dBm @ MCS3 40 MHz 24±1.5 dBm @ MCS4 40 MHz 23.5±1.5 dBm @ MCS5 40 MHz 22.5±1.5 dBm @ MCS6 40 MHz 22±1.5 dBm @ MCS7 40 MHz 21.5±1.5 dBm @ MCS8 40 MHz 21±1.5 dBm @ MCS9 40 MHz
Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -88 @ 6 Mbps Typ. -88 @ 9 Mbps Typ. -85 @ 12 Mbps Typ. -84 @ 18 Mbps Typ. -81 @ 24 Mbps Typ. -77 @ 36 Mbps Typ. -74 @ 48 Mbps

	Typ. -72 @ 54 Mbps
Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -84 dBm @ MCS1 20 MHz Typ. -83 dBm @ MCS2 20 MHz Typ. -80 dBm @ MCS3 20 MHz Typ. -76 dBm @ MCS4 20 MHz Typ. -72 dBm @ MCS5 20 MHz Typ. -70 dBm @ MCS6 20 MHz Typ. -68 dBm @ MCS7 20 MHz Typ. -89 dBm @ MCS8 20 MHz Typ. -87 dBm @ MCS9 20 MHz Typ. -85 dBm @ MCS10 20 MHz Typ. -81 dBm @ MCS11 20 MHz Typ. -78 dBm @ MCS12 20 MHz Typ. -74 dBm @ MCS13 20 MHz Typ. -73 dBm @ MCS14 20 MHz Typ. -71 dBm @ MCS15 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -82 dBm @ MCS1 40 MHz Typ. -79 dBm @ MCS2 40 MHz Typ. -77 dBm @ MCS3 40 MHz Typ. -73 dBm @ MCS4 40 MHz Typ. -69 dBm @ MCS5 40 MHz Typ. -68 dBm @ MCS6 40 MHz Typ. -66 dBm @ MCS7 40 MHz Typ. -87 dBm @ MCS8 40 MHz Typ. -84 dBm @ MCS9 40 MHz Typ. -82 dBm @ MCS10 40 MHz Typ. -79 dBm @ MCS11 40 MHz Typ. -75 dBm @ MCS12 40 MHz Typ. -72 dBm @ MCS13 40 MHz Typ. -70 dBm @ MCS14 40 MHz Typ. -69 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11ac (5 GHz, Dual Chain)	Typ. -89 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz Typ. -84 dBm @ MCS2 20 MHz Typ. -81 dBm @ MCS3 20 MHz Typ. -78 dBm @ MCS4 20 MHz Typ. -74 dBm @ MCS5 20 MHz Typ. -72 dBm @ MCS6 20 MHz Typ. -71 dBm @ MCS7 20 MHz Typ. -67 dBm @ MCS8 20 MHz Typ. -86 dBm @ MCS0 40 MHz Typ. -84 dBm @ MCS1 40 MHz Typ. -81 dBm @ MCS2 40 MHz Typ. -78 dBm @ MCS3 40 MHz Typ. -75 dBm @ MCS4 40 MHz Typ. -71 dBm @ MCS5 40 MHz Typ. -70 dBm @ MCS6 40 MHz Typ. -69 dBm @ MCS7 40 MHz Typ. -64 dBm @ MCS8 40 MHz Typ. -63 dBm @ MCS9 40 MHz Typ. -84 dBm @ MCS0 80 MHz Typ. -81 dBm @ MCS1 80 MHz Typ. -79 dBm @ MCS2 80 MHz Typ. -76 dBm @ MCS3 80 MHz Typ. -73 dBm @ MCS4 80 MHz Typ. -69 dBm @ MCS5 80 MHz Typ. -67 dBm @ MCS6 80 MHz Typ. -65 dBm @ MCS7 80 MHz Typ. -61 dBm @ MCS8 80 MHz Typ. -60 dBm @ MCS9 80 MHz
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -96 dBm @ 1 Mbps Typ. -92 dBm @ 2 Mbps Typ. -91 dBm @ 5.5 Mbps Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -90 dBm @ 6 Mbps Typ. -89 dBm @ 9 Mbps Typ. -88 dBm @ 12 Mbps

	Typ. -86 dBm @ 18 Mbps Typ. -82 dBm @ 24 Mbps Typ. -79 dBm @ 36 Mbps Typ. -75 dBm @ 48 Mbps Typ. -73 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	Typ. -89 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz Typ. -84 dBm @ MCS2 20 MHz Typ. -81 dBm @ MCS3 20 MHz Typ. -77 dBm @ MCS4 20 MHz Typ. -73 dBm @ MCS5 20 MHz Typ. -72 dBm @ MCS6 20 MHz Typ. -70 dBm @ MCS7 20 MHz Typ. -91 dBm @ MCS8 20 MHz Typ. -88 dBm @ MCS9 20 MHz Typ. -86 dBm @ MCS10 20 MHz Typ. -82 dBm @ MCS11 20 MHz Typ. -80 dBm @ MCS12 20 MHz Typ. -75 dBm @ MCS13 20 MHz Typ. -74 dBm @ MCS14 20 MHz Typ. -73 dBm @ MCS15 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -84 dBm @ MCS1 40 MHz Typ. -82 dBm @ MCS2 40 MHz Typ. -78 dBm @ MCS3 40 MHz Typ. -75 dBm @ MCS4 40 MHz Typ. -71 dBm @ MCS5 40 MHz Typ. -70 dBm @ MCS6 40 MHz Typ. -68 dBm @ MCS7 40 MHz Typ. -88 dBm @ MCS8 40 MHz Typ. -85 dBm @ MCS9 40 MHz Typ. -83 dBm @ MCS10 40 MHz Typ. -80 dBm @ MCS11 40 MHz Typ. -77 dBm @ MCS12 40 MHz Typ. -73 dBm @ MCS13 40 MHz Typ. -71 dBm @ MCS14 40 MHz Typ. -70 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11ac (2.4 GHz, Dual Chain)	Typ. -90 dBm @ MCS0 20 MHz Typ. -87 dBm @ MCS1 20 MHz Typ. -85 dBm @ MCS2 20 MHz Typ. -82 dBm @ MCS3 20 MHz Typ. -79 dBm @ MCS4 20 MHz Typ. -75 dBm @ MCS5 20 MHz Typ. -73 dBm @ MCS6 20 MHz Typ. -72 dBm @ MCS7 20 MHz Typ. -68 dBm @ MCS8 20 MHz Typ. -88 dBm @ MCS0 40 MHz Typ. -85 dBm @ MCS1 40 MHz Typ. -83 dBm @ MCS2 40 MHz Typ. -80 dBm @ MCS3 40 MHz Typ. -77 dBm @ MCS4 40 MHz Typ. -72 dBm @ MCS5 40 MHz Typ. -71 dBm @ MCS6 40 MHz Typ. -70 dBm @ MCS7 40 MHz Typ. -66 dBm @ MCS8 40 MHz Typ. -64 dBm @ MCS9 40 MHz
WLAN Operation Mode	Access point Client Client-Router Master Slave Sniffer ACC
Antenna Connectors	2 x QMA

Ethernet Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3at for PoE IEEE 802.1Q for VLAN Tagging IEEE 802.1X for authentication
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin female connector)	1 Supports IEEE 802.3at PoE

Ethernet Software Features

Management	DHCP Server DHCP Client DNS HTTP IPv4 LLDP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN MXconfig
Security	HTTPS/SSL RADIUS SSH
Time Management	SNTP Client

Firewall

Filter	ICMP MAC address IP protocol Port-based Client Isolation

Serial Interface

Console Port	RS-232 8-pin RJ45

LED Interface

LED Indicators	PWR1, PWR2, PoE, System, LAN, 2.4GHz, 5GHz, SIG

Input/Output Interface

Digital Inputs	2 Max. input current: 8 mA +13 to +30 V for state 1 +3 to -30 V for state 0
Alarm Contact Channels	Relay output with current carrying capacity of 1 A @ 24 VDC
Buttons	Reset button

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	45 x 130 x 118 mm (1.77 x 5.12 x 4.65 in)

Weight	800 g (1.76 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Power Parameters

Input Current	12-48 VDC, 2.01-0.5 A
Input Voltage	12 to 48 VDC Redundant dual inputs 48 VDC Power over Ethernet
Power Connector	1 removable 10-contact terminal block(s)
Power Consumption	24.12 W (max.)

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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, 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: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 30 A/m
Safety	IEC 60950-1 IEC 62368-1 UL 62368-1
Railway	EN 50121-4 EN 50155
Railway Fire Protection	EN 45545-2
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, FCC, MIC, TELEC, NCC, RCM, SRRC, IC

MTBF

Time	838,684 hrs
Standards	Telcordia Standard SR-332

Warranty

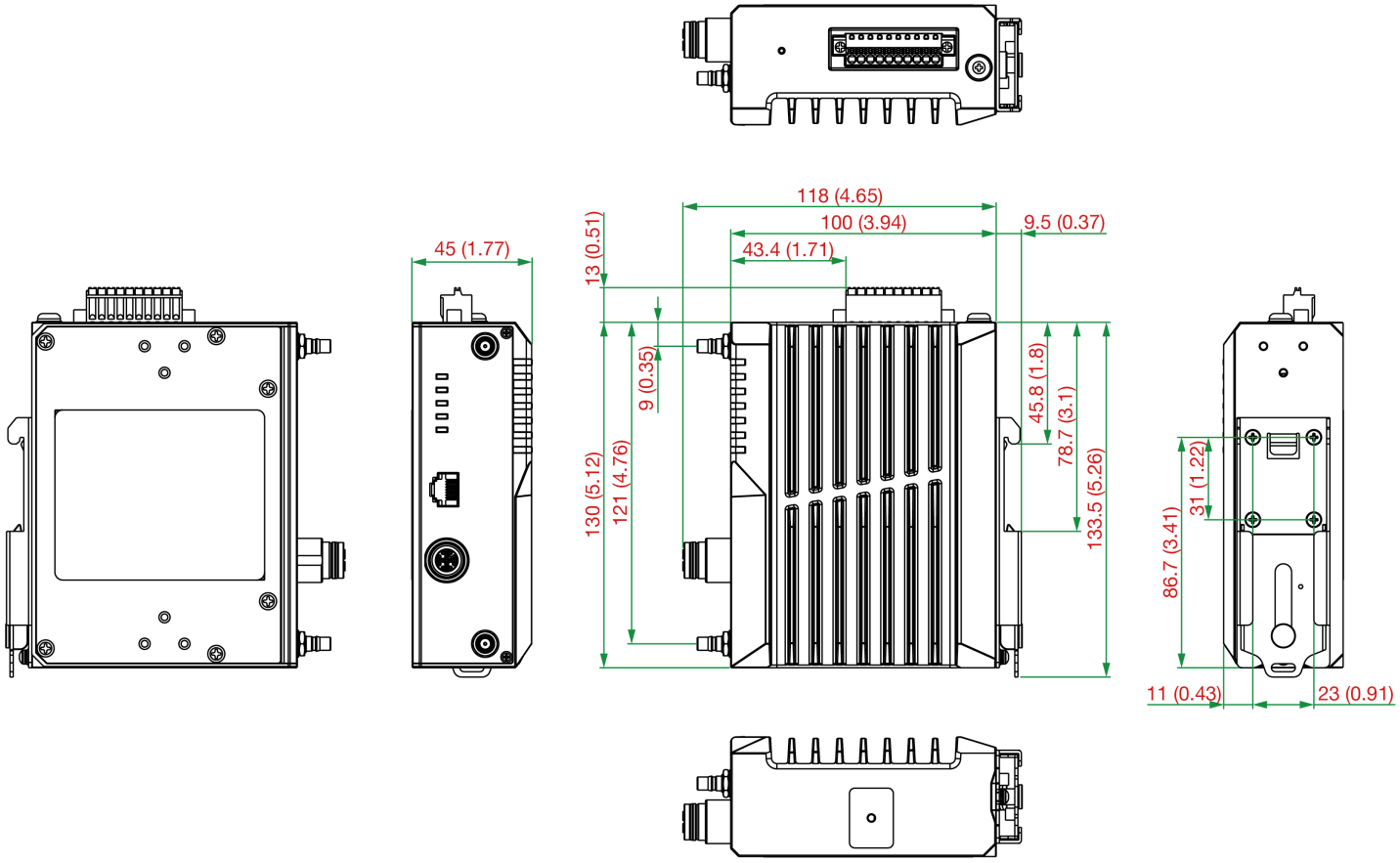
Warranty Period	5 years
Details	See www.moxa.com/jp/warranty

Package Contents

Device	1 x AWK-3251A-RCC Series wireless AP/client
Installation Kit	1 x cap, for RJ45 console port 1 x cap, for M12 Ethernet port 1 x cable holder with screw 1 x DIN-rail kit
Documentation	1 x quick installation guide 1 x warranty card

寸法

単位：mm（インチ）



注文情報

Model Name	Band	Operating Temp.	Conformal Coating
AWK-3251A-M12-RCC-US	US	-25 to 60°C	–
AWK-3251A-M12-RCC-US-T	US	-40 to 75°C	–
AWK-3251A-M12-RCC-US-CT-T	US	-40 to 75°C	P
AWK-3251A-M12-RCC-UN	UN	-25 to 60°C	–
AWK-3251A-M12-RCC-UN-T	UN	-40 to 75°C	–
AWK-3251A-M12-RCC-UN-CT-T	UN	-40 to 75°C	P

アクセサリー（別売）

Wall-Mounting Kits

WK-35-01	Wall-mounting kit with 2 plates (35 x 44 x 2.5 mm) and 6 screws