

AWK-3251A-RCC 系列

Wi-Fi 5 鐵路無線存取點/用戶端



特色與優點

- IEEE 802.11a/b/g/n/ac Wave 2 Ap/客戶端
- 並行雙頻 Wi-Fi，聚合資料速率高達 1.267 Gbps
- 最新的 WPA3 加密增強無線網路安全性
- 專門為軌道的車廂間通訊而設計
- 毫秒等級的用戶端 Turbo Roaming 漫遊¹
- 內建 2.4 GHz 和 5 GHz 帶通濾波器，實現更可靠的無線連接
- -40 至 75°C 寬操作溫度範圍 (-T 型號)

認證



EN 50155

簡介

AWK-3251A-RCC 系列工業無線 AP/客戶端 透過 IEEE 802.11ac 技術滿足日益增長的加速資料傳輸需求。自動車廂連線 (ACC) 功能可輕鬆部署無線設備並且增加無線車廂骨幹網路的可靠性。AWK-3251A-RCC 系列也針對乘客 Wi-Fi 服務進行了最佳化，並支援多達 120 個用戶端連線。AWK-3251A-RCC 系列符合 EN 50155 標準規範的部分項目，涵蓋操作溫度、電源輸入電壓、突波、ESD 和震動，使此產品適用於多種的工業應用。AWK-3251A-RCC 系列可透過 PoE 供電，方便靈活部署，並可在 AP 模式下同時在 2.4 和 5 GHz 頻段上運作。

進階 802.11ac 工業無線解決方案

- 符合 802.11a/b/g/n/ac 標準的鐵路雙頻存取點，聚合資料速率高達 1.267 Gbps
- WPA3 加密增強無線網路安全性
- 支援 ACC 技術，實現車廂間無線連接
- 支援多達 120 個設備連線和客戶端隔離

先進無線技術

- 基於用戶端的 Turbo Roaming 快速漫遊，達到無縫漫遊的目的。² 在 AP 間的漫遊復原時間 < 150 毫秒 (用戶端模式)

工業級耐用性

- 整合式天線隔離設計可提供保護，防止外部電氣干擾
- -40 至 75°C 的寬廣操作溫度型號 (-T) 可在惡劣環境中提供順暢的無線通訊

規格

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) ³ 5.500 to 5.700 GHz (11 channels) ³

1. 此處所指的 Turbo Roaming 快速漫遊復原時間是在最佳狀態下，配置無干擾 20 MHz RF 頻道、WPA2-PSK 安全性和預設的 Turbo Roaming 快速漫遊參數，所得到的測試結果平均值。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能影響漫遊的效能。若想了解更多關於 Turbo Roaming 快速漫遊的參數設定，請參閱產品手冊。
2. 支援 DFS (動態頻率選擇) 頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。

	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) ⁴ 5.500 to 5.700 GHz (11 channels) ⁴ 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 802.11ac: 6.5 to 400 Mbps 5 GHz: 802.11a: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: 6.5 to 867 Mbps
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

4. 支援 DFS (動態頻率選擇) 頻道：在 AP 模式下，當設備偵測到一個雷達信號，會自動切換到另一個頻道。然而，根據規定，當頻道切換後，若要重啟服務，需要 60 秒的可用性檢查期。

	<p>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</p>
Transmitter Power for 802.11b	<p>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</p>
Transmitter Power for 802.11g	<p>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</p>
Transmitter Power for 802.11n (2.4 GHz)	<p>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</p>

<p>Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)</p>	<p>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</p>
<p>Receiver Sensitivity for 802.11a (measured at 5.680 GHz)</p>	<p>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</p>
<p>Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)</p>	<p>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</p>
<p>Receiver Sensitivity for 802.11ac (5 GHz, Dual Chain)</p>	<p>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</p>

	<p>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</p>
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	<p>Typ. -96 dBm @ 1 Mbps Typ. -92 dBm @ 2 Mbps Typ. -91 dBm @ 5.5 Mbps Typ. -88 dBm @ 11 Mbps</p>
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	<p>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</p>
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	<p>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</p>
Receiver Sensitivity for 802.11ac (2.4 GHz, Dual Chain)	<p>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</p>

	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	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/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
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Serial Interface

Console Port	RS-232 8-pin RJ45
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LED Interface

LED Indicators	PWR1, PWR2, PoE, System, LAN, 2.4GHz, 5GHz, SIG
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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 SR332

Warranty

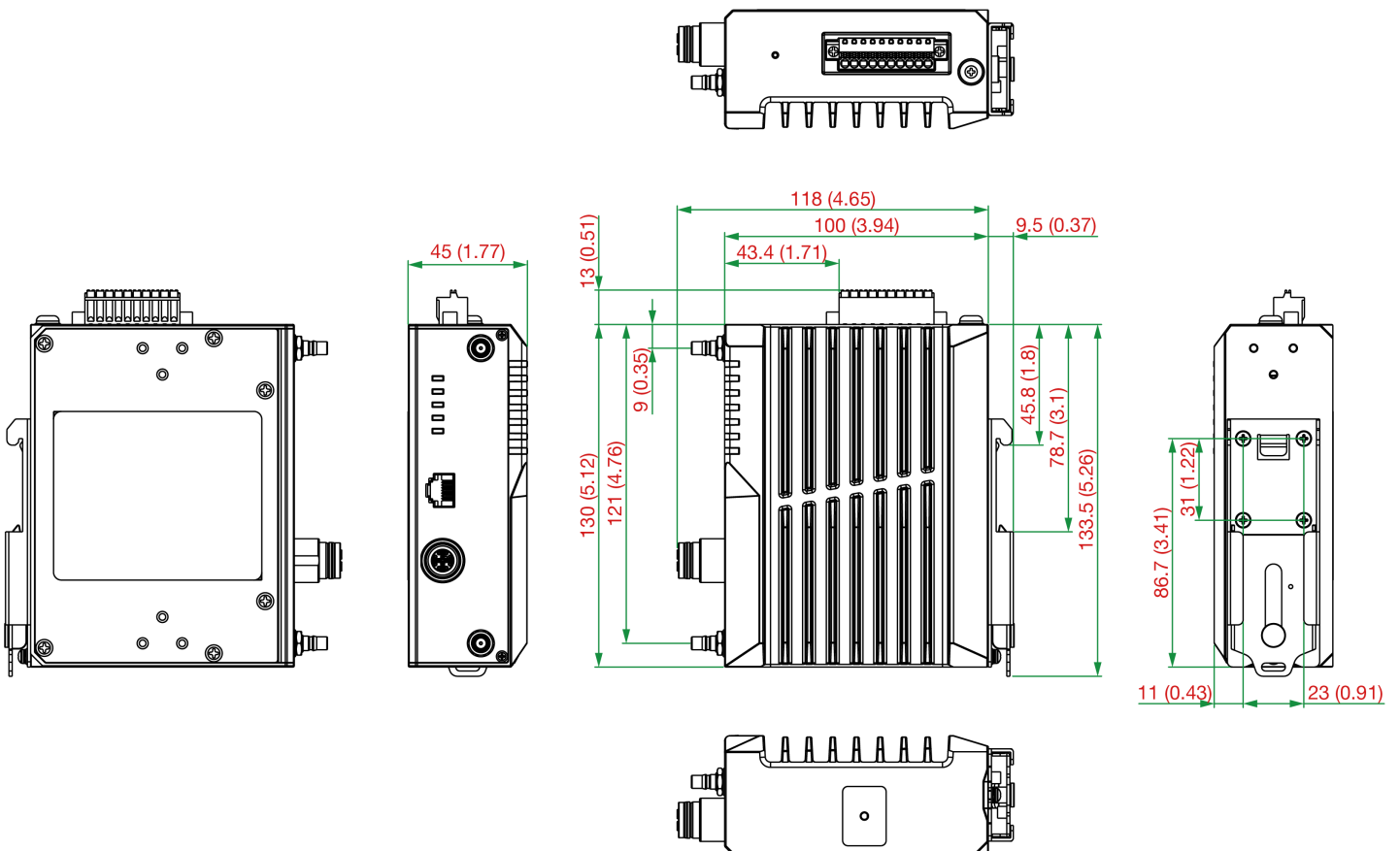
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

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

尺寸

單位：公釐（英吋）



訂購資訊

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	-

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

配件 (選購)

Wall-Mounting Kits

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