

AWK-3131A-RTG 系列

Wi-Fi 4 (802.11n) 鐵路列車對地 IP30 無線 AP/用戶端



特色與優點

- 用於車載與軌旁部署的 M12 和 SC 光纖 LAN 連接器
- 採用 DIN 導軌設計與 QMA 連接器，使部署更具靈活性
- 實現低於 50 毫秒且以控制器為基礎的 Turbo Roaming 快速漫遊，達成無縫列車對地通訊

認證



EN 50155



EN 50121-4



簡介

AWK-3131A-RTG 系列 Wi-Fi 4 (802.11n) 鐵路列車對地 IP30 等級無線 AP/用戶端專為可靠的列車對地 (T2G) 通訊所設計，支援切換時間低於 50 毫秒的無縫以控制器為基礎的 Turbo Roaming 快速漫遊。AWK-3131A-RTG 系列提供 M12 與 SSC 兩種型號，可滿足不同的部署需求，而 DIN 導軌設計與 QMA 天線連接器則簡化了安裝程序。

規格

WLAN Interface	
WLAN Standards	2.4 GHz: 802.11b/g/n with 64 QAM support, 20/40 MHz 5 GHz: 802.11a/n with 64 QAM support, 20/40 MHz
Frequency Band for US (20 MHz operating channels)	AWK-3131A-RTG-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 (8 channels) excluding 5.600 to 5.640 GHz ¹ 5.745 to 5.825 GHz (5 channels)
Frequency Band for EU (20 MHz operating channels)	AWK-3131A-RTG-EU 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
Frequency Band for JP (20 MHz operating channels)	AWK-3131A-RTG-JP models only: 2.412 to 2.484 GHz (14 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
Wireless Security	SSID broadcast enable/disable, 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

1. 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。

Transmitter Power for 802.11n (5 GHz)	23±1.5 dBm @ MCS0 20 MHz, 20±1.5 dBm @ MCS1 20 MHz, 20±1.5 dBm @ MCS2 20 MHz, 20±1.5 dBm @ MCS3 20 MHz, 19±1.5 dBm @ MCS4 20 MHz, 18±1.5 dBm @ MCS5 20 MHz, 18±1.5 dBm @ MCS6 20 MHz, 18±1.5 dBm @ MCS7 20 MHz, 23±1.5 dBm @ MCS8 20 MHz, 20±1.5 dBm @ MCS9 20 MHz, 20±1.5 dBm @ MCS10 20 MHz, 20±1.5 dBm @ MCS11 20 MHz, 19±1.5 dBm @ MCS12 20 MHz, 19±1.5 dBm @ MCS13 20 MHz, 18±1.5 dBm @ MCS14 20 MHz, 18±1.5 dBm @ MCS15 20 MHz, 23±1.5 dBm @ MCS0 40 MHz, 20±1.5 dBm @ MCS1 40 MHz, 20±1.5 dBm @ MCS2 40 MHz, 20±1.5 dBm @ MCS3 40 MHz, 19±1.5 dBm @ MCS4 40 MHz, 18±1.5 dBm @ MCS5 40 MHz, 18±1.5 dBm @ MCS6 40 MHz, 18±1.5 dBm @ MCS7 40 MHz, 23±1.5 dBm @ MCS8 40 MHz, 20±1.5 dBm @ MCS9 40 MHz, 20±1.5 dBm @ MCS10 40 MHz, 20±1.5 dBm @ MCS11 40 MHz, 19±1.5 dBm @ MCS12 40 MHz, 19±1.5 dBm @ MCS13 40 MHz, 18±1.5 dBm @ MCS14 40 MHz, 18±1.5 dBm @ MCS15 40 MHz
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, 21±1.5 dBm @ 36 Mbps, 19±1.5 dBm @ 48 Mbps, 18±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz)	23±1.5 dBm @ MCS0 20 MHz, 21±1.5 dBm @ MCS1 20 MHz, 21±1.5 dBm @ MCS2 20 MHz, 21±1.5 dBm @ MCS3 20 MHz, 20±1.5 dBm @ MCS4 20 MHz, 19±1.5 dBm @ MCS5 20 MHz, 18±1.5 dBm @ MCS6 20 MHz, 18±1.5 dBm @ MCS7 20 MHz, 23±1.5 dBm @ MCS8 20 MHz, 21±1.5 dBm @ MCS9 20 MHz, 21±1.5 dBm @ MCS10 20 MHz, 21±1.5 dBm @ MCS11 20 MHz, 20±1.5 dBm @ MCS12 20 MHz, 19±1.5 dBm @ MCS13 20 MHz, 18±1.5 dBm @ MCS14 20 MHz, 18±1.5 dBm @ MCS15 20 MHz, 23±1.5 dBm @ MCS0 40 MHz, 20±1.5 dBm @ MCS1 40 MHz, 20±1.5 dBm @ MCS2 40 MHz, 20±1.5 dBm @ MCS3 40 MHz, 19±1.5 dBm @ MCS4 40 MHz, 19±1.5 dBm @ MCS5 40 MHz, 18±1.5 dBm @ MCS6 40 MHz, 17±1.5 dBm @ MCS7 40 MHz, 23±1.5 dBm @ MCS8 40 MHz, 20±1.5 dBm @ MCS9 40 MHz, 20±1.5 dBm @ MCS10 40 MHz, 20±1.5 dBm @ MCS11 40 MHz, 20±1.5 dBm @ MCS12 40 MHz, 19±1.5 dBm @ MCS13 40 MHz, 18±1.5 dBm @ MCS14 40 MHz, 17±1.5 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -90 @ 6 Mbps, Typ. -88 @ 9 Mbps, Typ. -88 @ 12 Mbps, Typ. -85 @ 18 Mbps, Typ. -81 @ 24 Mbps, Typ. -78 @ 36 Mbps, Typ. -74 @ 48 Mbps, Typ. -74 @ 54 Mbps, Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications.
Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)	Typ. -88 dBm @ MCS0 20 MHz, Typ. -85 dBm @ MCS1 20 MHz, Typ. -82 dBm @ MCS2 20 MHz, Typ. -79 dBm @ MCS3 20 MHz, Typ. -76 dBm @ MCS4 20 MHz, Typ. -71 dBm @ MCS5 20 MHz, Typ. -70 dBm @ MCS6 20 MHz, Typ. -69 dBm @ MCS7 20 MHz, Typ. -95 dBm @ MCS8 20 MHz, Typ. -91 dBm @ MCS9 20 MHz, Typ. -87 dBm @ MCS10 20 MHz, Typ. -80 dBm @ MCS11 20 MHz, Typ. -78 dBm @ MCS12 20 MHz, Typ. -74 dBm @ MCS13 20 MHz, Typ. -72 dBm @ MCS14 20 MHz, Typ. -71 dBm @ MCS15 20 MHz, Typ. -84 dBm @ MCS0 40 MHz, Typ. -81 dBm @ MCS1 40 MHz, Typ. -77 dBm @ MCS2 40 MHz, Typ. -75 dBm @ MCS3 40 MHz, Typ. -71 dBm @ MCS4 40 MHz, Typ. -67 dBm @ MCS5 40 MHz, Typ. -64 dBm @ MCS6 40 MHz, Typ. -63 dBm @ MCS7 40 MHz, Typ. -90 dBm @ MCS8 40 MHz, Typ. -85 dBm @ MCS9 40 MHz, Typ. -82 dBm @ MCS10 40 MHz, Typ. -81 dBm @ MCS11 40 MHz, Typ. -77 dBm @ MCS12 40 MHz, Typ. -73 dBm @ MCS13 40 MHz, Typ. -71 dBm @ MCS14 40 MHz, Note: Due to a limitation in the receiver sensitivity performance for channels 153 and 161, it is recommended to avoid using these channels in your critical applications., Typ. -68 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -93 dBm @ 1 Mbps, Typ. -93 dBm @ 2 Mbps, Typ. -93 dBm @ 5.5 Mbps, Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -88 dBm @ 6 Mbps, Typ. -86 dBm @ 9 Mbps, Typ. -85 dBm @ 12 Mbps, Typ. -85 dBm @ 18 Mbps, Typ. -85 dBm @ 24 Mbps, Typ. -82 dBm @ 36 Mbps, Typ. -78 dBm @ 48 Mbps, Typ. -74 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	Typ. -89 dBm @ MCS0 20 MHz, Typ. -85 dBm @ MCS1 20 MHz, Typ. -85 dBm @ MCS2 20 MHz, Typ. -82 dBm @ MCS3 20 MHz, Typ. -78 dBm @ MCS4 20 MHz, Typ. -74 dBm @ MCS5 20 MHz, Typ. -72 dBm @ MCS6 20 MHz, Typ. -70 dBm @ MCS7 20 MHz, Typ. -95 dBm @ MCS8 20 MHz, Typ. -90 dBm @ MCS9 20 MHz, Typ. -87 dBm @ MCS10 20 MHz, Typ. -83 dBm @ MCS11 20 MHz, Typ. -80 dBm @ MCS12 20 MHz, Typ. -74 dBm @ MCS13 20 MHz, Typ. -71 dBm @ MCS14 20 MHz, Typ. -69 dBm @ MCS15 20 MHz, Typ. -87 dBm @ MCS0 40 MHz, Typ. -83 dBm @ MCS1 40 MHz, Typ. -83 dBm @ MCS2 40 MHz, Typ. -80 dBm @ MCS3 40 MHz, Typ. -76 dBm @ MCS4 40 MHz, Typ. -73 dBm @ MCS5 40 MHz, Typ. -69 dBm @ MCS6 40 MHz, Typ. -67 dBm @ MCS7 40 MHz, Typ. -93 dBm @ MCS8 40 MHz, Typ. -88 dBm @ MCS9 40 MHz, Typ. -85 dBm @ MCS10 40 MHz, Typ. -82 dBm @ MCS11 40 MHz, Typ. -78 dBm @ MCS12 40 MHz, Typ. -73 dBm @ MCS13 40 MHz, Typ. -69 dBm @ MCS14 40 MHz, Typ. -67 dBm @ MCS15 40 MHz

WLAN Operation Mode	Access point, Client, Client-Router, Sniffer														
Antenna Connectors	2 x QMA														
Ethernet Interface															
Standards	IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X), IEEE 802.3af for PoE, IEEE 802.1Q for VLAN Tagging														
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	AWK-3131A-M12-RTG models: 1 Supports IEEE 802.3af PoE														
100BaseFX Ports (single-mode SC connector)	AWK-3131A-SSC-RTG models: 1														
Optical Fiber	<table> <tr> <th></th><th>100BaseFX</th></tr> <tr> <td>Wavelength</td><td>1310 nm</td></tr> <tr> <td>Max. TX</td><td>0 dBm</td></tr> <tr> <td>Min. TX</td><td>-5 dBm</td></tr> <tr> <td>RX Sensitivity</td><td>-34 dBm</td></tr> <tr> <td>Link Budget</td><td>29 dB</td></tr> <tr> <td>Typical Distance</td><td>40 km</td></tr> </table>		100BaseFX	Wavelength	1310 nm	Max. TX	0 dBm	Min. TX	-5 dBm	RX Sensitivity	-34 dBm	Link Budget	29 dB	Typical Distance	40 km
	100BaseFX														
Wavelength	1310 nm														
Max. TX	0 dBm														
Min. TX	-5 dBm														
RX Sensitivity	-34 dBm														
Link Budget	29 dB														
Typical Distance	40 km														
Ethernet Software Features															
Management	SNMPv1/v2c/v3, Proxy ARP, ARP, DNS, HTTP, HTTPS, ICMP, TCP/IP, UDP, RADIUS, DHCP, BOOTP, STP/RSTP (IEEE 802.1D/w)														
Security	RADIUS														
Time Management	SNTP														
LED Interface															
LED Indicators	All models: PWR1, PWR2, FAULT, STATE, SIGNAL, CLIENT, WLAN AWK-3131A-M12-RTG models only: PoE, LAN AWK-3131A-SSC-RTG models only: 100M														
Firewall															
Filter	IP protocol, MAC address, Port-based														
Serial Interface															
Console Port	RS-232 (RJ45-type)														
Input/Output Interface															
Digital Inputs	2, +13 to +30 V for state 1, +3 to -30 V for state 0, Max. input current: 8 mA														
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	52.9 x 151.9 x 127.4 mm (2.08 x 5.98 x 5.02 in)														
Weight	850 g (1.87 lb)														
Installation	DIN-rail mounting, Wall mounting (with optional kit)														

Power Parameters

Input Current	AWK-3131A-M12-RTG models: 0.85 A @ 12 VDC, 0.22 A @ 48 VDC AWK-3131A-SSC-RTG models: 1.0 A @ 12 VDC, 0.27 A @ 48 VDC
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	AWK-3131A-M12-RTG models: 10.5 W (max.) AWK-3131A-SSC-RTG models: 13 W (max.)
Reverse Polarity Protection	Supported

Environmental Limits

Operating Temperature	-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 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class B
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, IEC 61000-4-8
Cybersecurity	EN 18031-1
Railway	EN 50155, EN 50121-4
Railway Fire Protection	EN 45545-2
Radio	EN 301 489-1/17, EN 300 328, EN 301 893, MIC, FCC ID SLE-WAPN008, SRRC, NCC, IDA
Safety	UL 60950-1, IEC 60950-1, EN 60950-1 (LVD)

MTBF

Time	AWK-3131A-M12-RTG models: 552,454 hrs AWK-3131A-SSC-RTG models: 528,478 hrs
Standards	Telcordia Standard SR-332

Warranty

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

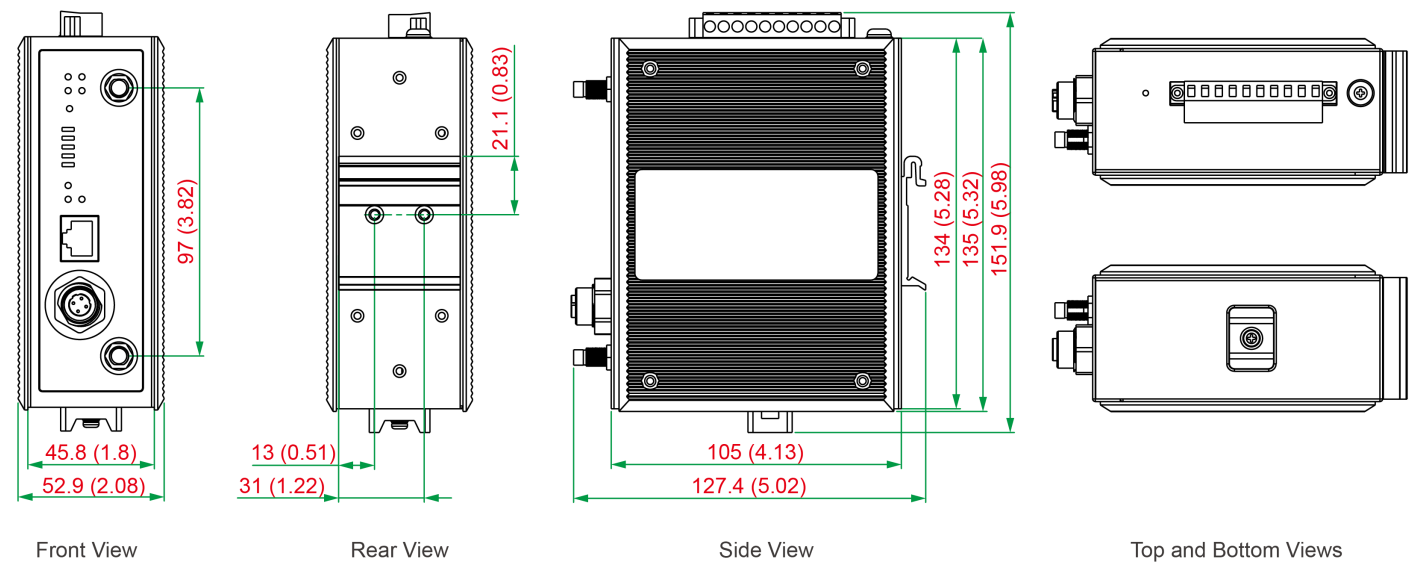
Package Contents

Device	1 x AWK-3131A-RTG wireless AP/client
Installation Kit	1 x DIN-rail kit, 2 x cap, plastic, for RJ45 port, 1 plastic protective cap for fiber port (AWK-3131A-SSC-RTG only), 1 x cable holder with screw
Documentation	1 x quick installation guide, 1 x warranty card

尺寸

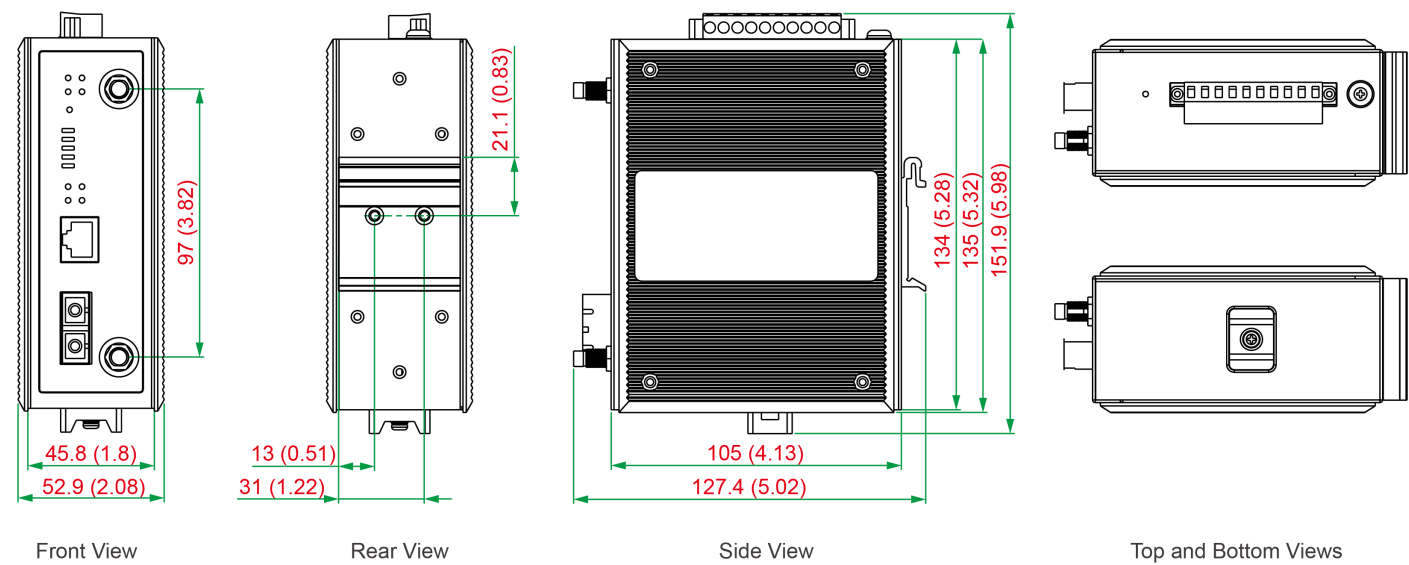
AWK-3131A-M12-RTG 型號

單位：公釐（英吋）



AWK-3131A-SCC-RTG 型號

單位：公釐（英吋）



訂購資訊

Model Name	Band	Connector	Conformal Coating
AWK-3131A-M12-RTG-EU-T	EU	M12	-
AWK-3131A-M12-RTG-US-T	US	M12	-
AWK-3131A-M12-RTG-JP-T	JP	M12	-
AWK-3131A-M12-RTG-EU-CT-T	EU	M12	P
AWK-3131A-M12-RTG-US-CT-T	US	M12	P
AWK-3131A-M12-RTG-JP-CT-T	JP	M12	P
AWK-3131A-SSC-RTG-EU-T	EU	Single-mode SC	-
AWK-3131A-SSC-RTG-US-T	US	Single-mode SC	-

Model Name	Band	Connector	Conformal Coating
AWK-3131A-SSC-RTG-JP-T	JP	Single-mode SC	-
AWK-3131A-SSC-RTG-EU-CT-T	EU	Single-mode SC	P
AWK-3131A-SSC-RTG-US-CT-T	US	Single-mode SC	P
AWK-3131A-SSC-RTG-JP-CT-T	JP	Single-mode SC	P

配件（選購）

Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws
----------	---

© Moxa Inc. 版權所有。2026 年 1 月 23 日更新。

未經 Moxa Inc. 明確書面許可，不得以任何方式複製或使用本文件及其任何部分。產品規格如有變更，恕不另行通知。請至本公司官網了解最新的產品資訊。