

AWK-1161C 系列

入門級 1 埠工業 Wi-Fi 6 (802.11ax) 無線用戶端



特色與優點

- 高速 IEEE 802.11ax Wi-Fi
- 可選雙頻 Wi-Fi，資料傳輸速率最高可達 1,201 Mbps
- 最新 WPA3 加密技術，可提升無線網路安全性
- 通用 (UN) 型號可設定國家或地區碼，以進行更具有彈性的部署
- 透過網路位址轉譯 (NAT) 輕鬆設定網路
- 毫秒等級的用戶端 Turbo Roaming 漫遊¹
- 支援 802.11r 通訊協定，可實現快速且無縫的用戶端漫遊
- 內建 2.4 GHz 和 5 GHz 頻段濾波器，實現更可靠的無線連接
- -40 至 75°C 寬操作溫度範圍 (-T 型號)
- 整合式天線隔離

認證



簡介

AWK-1161C 系列工業級無線用戶端專為透過 IEEE 802.11ax (Wi-Fi 6) 技術，滿足在高密度部署情境下進行有效資料傳輸的成長需求所設計。在操作溫度、電源輸入電壓、突波、ESD 和震動方面，AWK-1161C 符合工業標準及規定。含有 DIN 軌道或選配壁掛安裝套件的小巧外型可輕鬆裝配到工業機器或控制機櫃中，提供可靠的無線連線能力。AWK-1161C 可以在 2.4 或 5 GHz 頻段上操作，並相容現有的 802.11a/b/g/n/ac 部署，可保證您的無線投資滿足於未來的發展。

先進 802.11ax 工業無線解決方案

- 符合 802.11ax Wi-Fi 6 的用戶端相容於 Wi-Fi 4/ Wi-Fi 5 以便進行彈性部署
- DFS 頻道支援提供更廣泛的 5 GHz 頻道選擇，避免現有無線基礎設施的干擾
- Wi-Fi 6 OFDMA (正交分頻多重存取) 技術可同時與多個用戶端通訊，以改善網路效率
- Wi-Fi 6 的「空間重用 (Spatial Reuse)」技術，透過允許在高密度環境中進行更多同時傳輸，從而提升網路容量

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。¹ 在 AP 間的漫遊復原時間 < 150 毫秒
- 故障排除 SSID 功能透過在用戶端模式中，當與 AP 的連線遺失時，啟用一個臨時 SSID 來進行無線診斷

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 (-T) 型號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: 802.11ax with 1024 QAM support, 20/40 MHz 5 GHz: 802.11ax with 1024 QAM support, 20/40/80 MHz WMM for QoS
Frequency Band for US (20 MHz operating channels)	AWK-1161C-US models only: 2.412 to 2.462 GHz (11 channels) 5.180 to 5.240 GHz (4 channels)

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。其他情況也有可能會影響漫遊的效能。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。

	5.260 to 5.320 GHz (4 channels) ² 5.500 to 5.700 GHz (11 channels) ² 5.745 to 5.825 GHz (5 channels)
Frequency Band for UN (20 MHz operating channels)	AWK-1161C-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) ² 5.500 to 5.700 GHz (11 channels) ² 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
Wireless Roaming	Turbo Roaming ³ 802.11r
Transmission Rate	2.4 GHz: Up to 573.5 Mbps 5 GHz: Up to 1,201 Mbps
Transmitter Power for 802.11a (Dual Chain)	21±1.5 dBm @ 6 Mbps 21±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (5 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS7 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS8 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS9 40 MHz 21±1.5 dBm @ MCS0 80 MHz 21±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11ax (Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 20±1.5 dBm @ MCS11 20 MHz 21±1.5 dBm @ MCS0 40 MHz 20±1.5 dBm @ MCS11 40 MHz 21±1.5 dBm @ MCS0 80 MHz 20±1.5 dBm @ MCS11 80 MHz
Transmitter Power for 802.11b (Dual Chain)	21±1.5 dBm @ 1 Mbps 21±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g (Dual Chain)	21±1.5 dBm @ 6 Mbps 21±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS7 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS8 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS7 40 MHz
Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)	21±1.5 dBm @ MCS0 20 MHz 21±1.5 dBm @ MCS11 20 MHz 21±1.5 dBm @ MCS0 40 MHz 21±1.5 dBm @ MCS11 40 MHz

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。
3. 此處所指出的快速漫遊復原時間是在最佳化條件下記錄的平均測試結果，其中包含無干擾的 20 MHz RF 頻道、WPA2-PSK 安全性和預設快速漫遊參數。用戶端設定為在 100 Kbps 流量負載下 3 個頻道漫遊。其他情況也有可能會影響漫遊的效能。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。

Receiver Sensitivity for 802.11a (measured at 5.680 GHz)	Typ. -88 @ 6 Mbps Typ. -72 @ 54 Mbps
Receiver Sensitivity for 802.11n (5 GHz; measured at 5.680 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -68 dBm @ MCS7 20 MHz Typ. -84 dBm @ MCS0 40 MHz Typ. -66 dBm @ MCS7 40 MHz
Receiver Sensitivity for 802.11ac (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -65 dBm @ MCS8 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -60 dBm @ MCS9 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -55 dBm @ MCS9 80 MHz
Receiver Sensitivity for 802.11ax (5 GHz)	Typ. -88 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -52 dBm @ MCS11 80 MHz
Receiver Sensitivity for 802.11b (measured at 2.437 GHz)	Typ. -96 dBm @ 1 Mbps Typ. -88 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g (measured at 2.437 GHz)	Typ. -90 dBm @ 6 Mbps Typ. -74 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz; measured at 2.437 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -70 dBm @ MCS7 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -69 dBm @ MCS7 40 MHz
Receiver Sensitivity for 802.11ac (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -66 dBm @ MCS6 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -63 dBm @ MCS9 40 MHz
Receiver Sensitivity for 802.11ax (2.4 GHz)	Typ. -90 dBm @ MCS0 20 MHz Typ. -59 dBm @ MCS11 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -56 dBm @ MCS11 40 MHz
WLAN Operation Mode	Client Client-Router Slave Sniffer
Antenna	External, 2/2 dBi Omni-directional
Antenna Connectors	2 RP-SMA female

Ethernet Interface

Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3az for Energy-Efficient Ethernet IEEE 802.1Q for VLAN Tagging IEEE 802.1X for authentication
10/100/1000BaseT(X) Ports (RJ45 connector)	1

Ethernet Software Features

Management	DHCP Server DHCP Client DNS HTTP IPv4 LLDP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN MXconfig
Routing	Port forwarding Static Route NAT
Security	HTTPS/SSL RADIUS SSH Certificate Management
Time Management	SNTP Client

Firewall

Filter	ICMP MAC address IP protocol Port-based Wi-Fi ACL
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Serial Interface

Console Port	RS-232 8-pin RJ45
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USB Interface

Storage Port	USB Type A
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LED Interface

LED Indicators	PWR, WLAN, SYSTEM
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Input/Output Interface

Buttons	Reset button
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Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	AWK-1161C models: 60 x 100 x 34.2 mm (2.36 x 3.94 x 1.35 in) AWK-1161C-T models: 60 x 100 x 47.2 mm (2.36 x 3.94 x 1.86 in)
Weight	AWK-1161C models: 330 g (0.73 lb) AWK-1161C-T models: 387.5 g (0.85 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)

Power Parameters

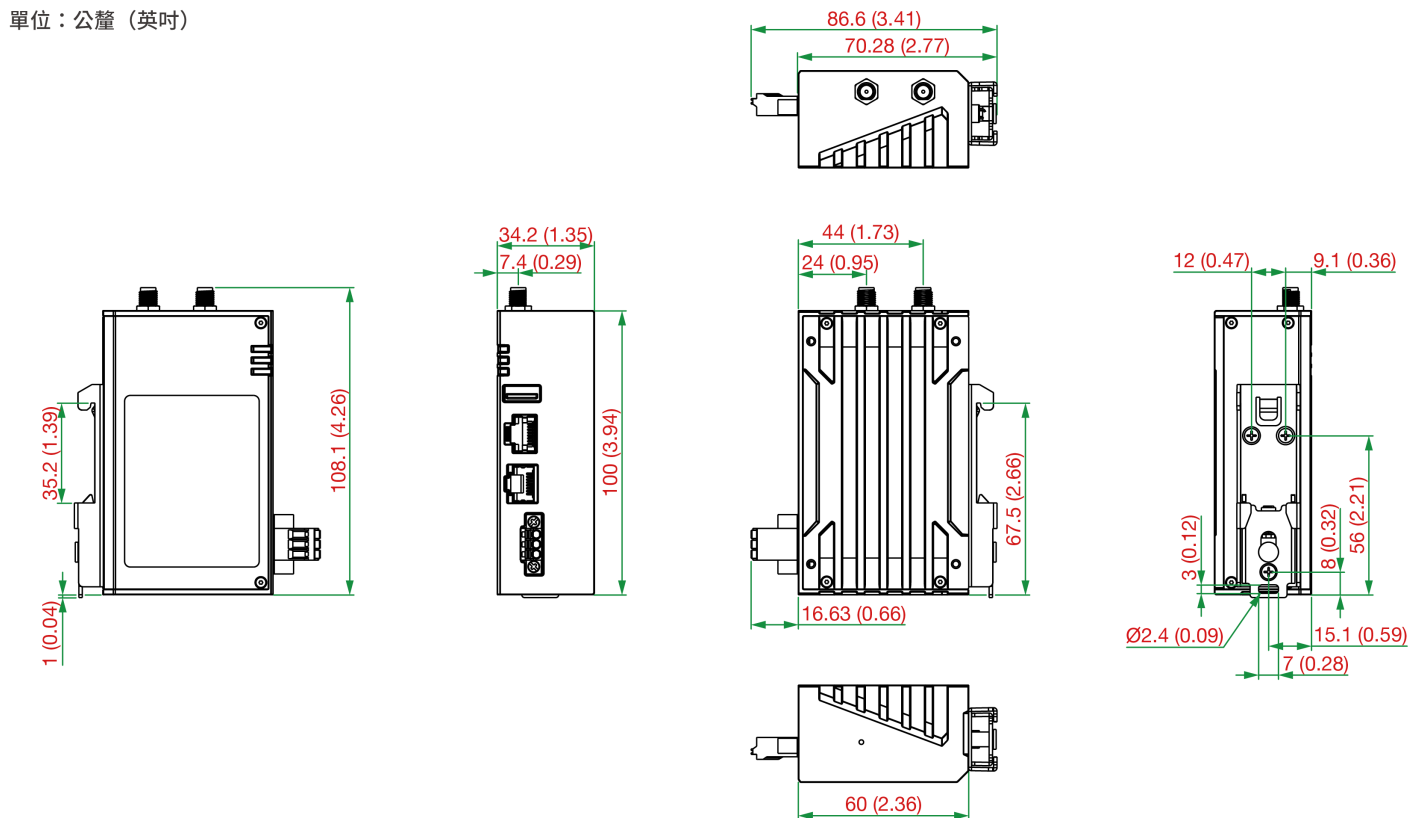
Input Current	9 to 30 VDC, 1.57 to 0.47 A
Input Voltage	9 to 30 VDC

Power Connector	1 removable 3-contact terminal block(s)
Power Consumption	14 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 61000-6-2/-6-4 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: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 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
Road Vehicles	E mark E1
Medical	IEC 60601
Safety	IEC 62368-1 UL 62368-1
Cybersecurity	EN 18031-1
Vibration	IEC 60068-2-6
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, FCC, MIC, NCC, RCM, SRRC, WPC, KC, NBTC, IC
MTBF	
Time	4,002,106 hrs
Standards	Telcordia Standard SR-332
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty
Package Contents	
Device	1 x AWK-1161C Series wireless client
Installation Kit	1 x DIN-rail kit
Antenna	2 x 2.4/5 GHz antenna
Documentation	1 x quick installation guide 1 x warranty card

尺寸

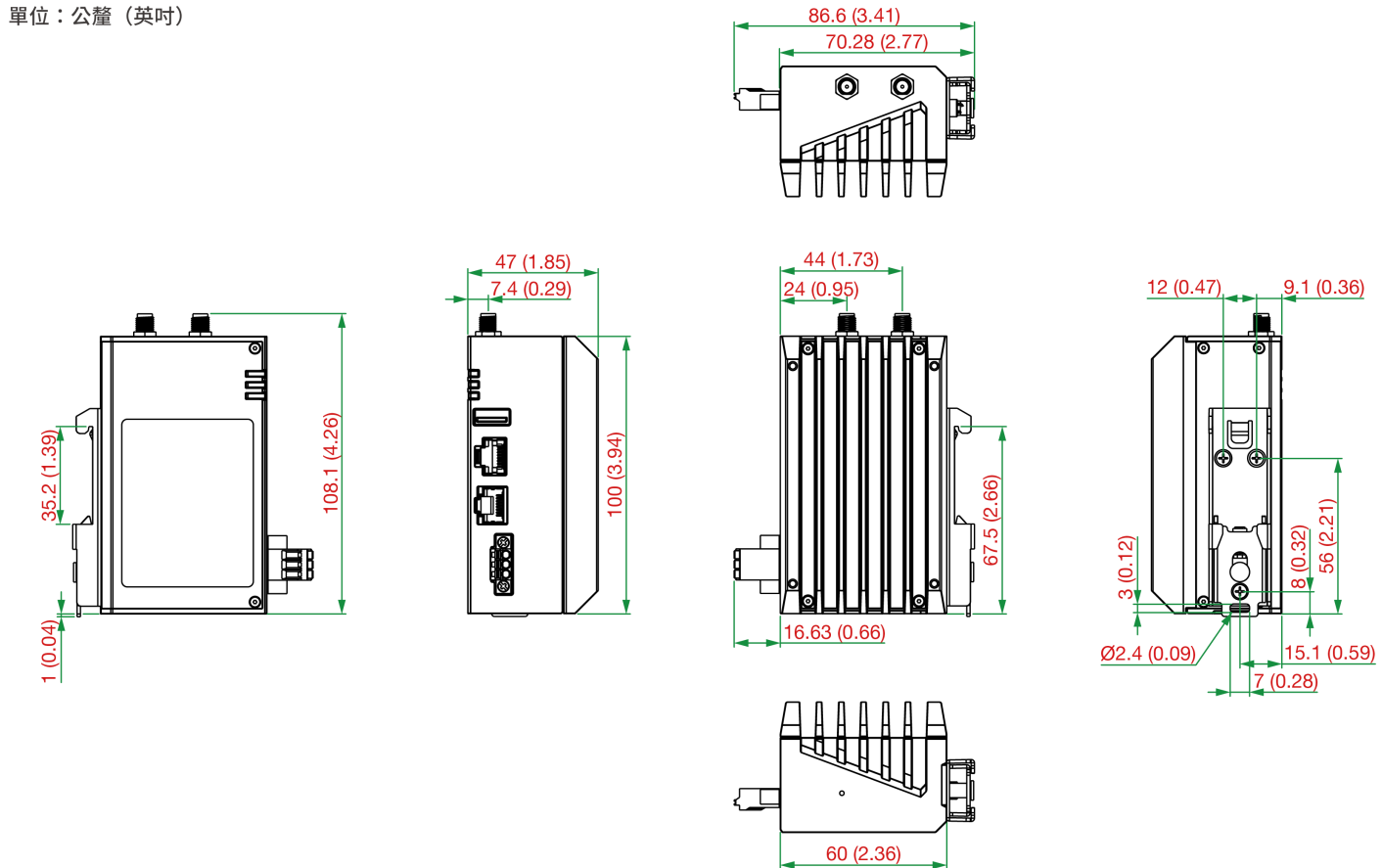
標準型號

單位：公釐（英吋）



寬溫度 (-T) 型號

單位：公釐（英吋）



Model Name	Band	Standards	Operating Temp.
AWK-1161C-UN	UN	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1161C-UN-T	UN	802.11ax (Wi-Fi 6)	-40 to 75°C
AWK-1161C-US	US	802.11ax (Wi-Fi 6)	-25 to 60°C
AWK-1161C-US-T	US	802.11ax (Wi-Fi 6)	-40 to 75°C

配件（選購）

Antennas

ANT-WSB-PNF-12-02	12 dBi at 2.4 GHz, N-type (female), single-band directional antenna
ANT-WSB5-PNF-16	16 dBi at 5 GHz, N-type (female), single-band directional antenna
ANT-WDB-ONM-0707	07 dBi at 2.4 GHz and 07 dBi at 5 GHz, N-type (male), dual-band omnidirectional antenna
ANT-WDB-PNF-1011	10 dBi at 2.4 GHz and 11 dBi at 5 GHz, N-type (female), dual-band directional antenna
ANT-WDB-ONF-0709	7 dBi at 2.4 GHz or 9 dBi at 5 GHz, N-type (female), dual-band, omnidirectional antenna
ANT-WDB-ANM-0306	3 dBi at 2.4 GHz or 6 dBi at 5 GHz, N-type (male), omnidirectional antenna
ANT-WDB-ARM-02	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male) omnidirectional rubber-duck antenna
ANT-WDB-ARM-0202	2 dBi at 2.4 GHz or 2 dBi at 5 GHz, RP-SMA (male), dual-band, omnidirectional antenna
ANT-WSB-AHRM-05-1.5m	5 dBi at 2.4 GHz, RP-SMA (male), omnidirectional/dipole antenna, 1.5 m cable
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-WDB-ANM-0502	5 dBi at 2.4 GHz or 2 dBi at 5 GHz, N-type (male), omnidirectional antenna

Wireless Antenna Cables

A-CRF-RFRM-R5-60	Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, RG-402 type, 0.6 m
A-CRF-RFRM-R4-150	Wireless antenna cable with RP-SMA (female) to RP-SMA (male) connectors, magnetic base, RG-174 type, 1.5 m
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

Surge Arrestors

A-SA-NMNF-02	0 to 6 GHz, N-type (male) to N-type (female) surge arrester
A-SA-NFNF-02	0 to 6 GHz, N-type (female) to N-type (female) surge arrester

Wireless Terminating Resistors

A-TRM-50-NM	50-ohm termination resistor with N-type male connector
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Wall-Mounting Kits

WK-56-01	Wall-mounting kit with 2 plates (56 x 33.3 x 2 mm) and 4 screws
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