Wi-Fi 7 Dual Band 802.11be 5100Mbps Outdoor Wireless Access Point

Next-Generation Outdoor Wi-Fi 7 Flagship Performance

The WDAP-5100BE is PLANET's next-generation flagship outdoor wireless access point, designed with an upgraded 2×2 (2.4GHz) + 3×3 (5GHz) Wi-Fi 7 architecture that delivers an impressive total throughput of up to 5100Mbps. Leveraging advanced Wi-Fi 7 technologies including EHT modulation, 4096-QAM, OFDMA, MU-MIMO, and BSS Coloring, it provides ultra-fast speeds, exceptionally low latency, and highly efficient bandwidth utilization across wide-area deployments. Even in interference-prone or high-density outdoor environments, the WDAP-5100BE ensures consistently smooth and responsive wireless performance for mission-critical applications.

Rugged IP67 Metal Construction for Extreme Outdoor Environments

Built to operate reliably under severe environmental conditions, the WDAP-5100BE features a reinforced metal enclosure with **IP67-rated protection**, offering complete resistance against dust ingress and powerful water exposure. Its industrial-grade hardware supports a **wide operating temperature range of -40°C to 70°C**, ensuring stable operation in both freezing climates and scorching outdoor heat. With enhanced lightning-protection circuitry and superior mechanical durability, the WDAP-5100BE remains highly dependable when deployed on poles, rooftops, building exteriors, or exposed industrial sites.

Standard-compliant Outdoor Wireless LAN

- Compliant with IEEE 802.11a/b/g/n/ac/ax/be (Wi-Fi 7) dual-band wireless technology
- Dual-band concurrent operation with a maximum wireless throughput of **5100Mbps** (2.4GHz: 688Mbps, 5GHz: 4323Mbps)
- Built-in support for advanced Wi-Fi 7 features: **4096-QAM**, **OFDMA**, **MU-MIMO**, **Beamforming**, **BSS Coloring**, **Seamless Roaming (802.11k/v/r)**
- Enhanced 3×3 5GHz Wi-Fi 7 radio boosts downlink and uplink throughput, multi-user efficiency, and long-range signal stability—ideal for outdoor surveillance uplinks and dense client environments.

Rugged Outdoor Hardware Design

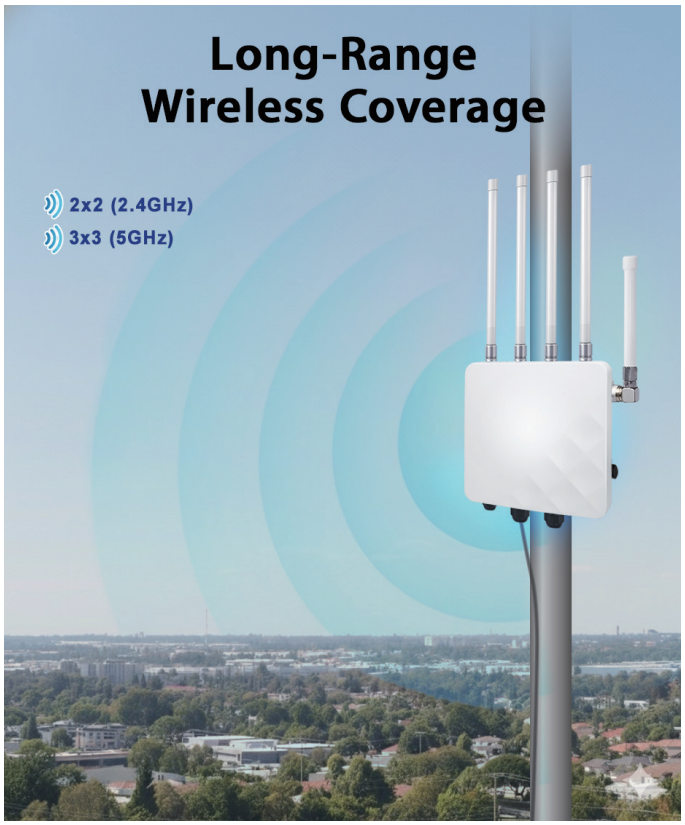
- **1 × 100/1000/2500BASE-T PoE+ WAN port** (802.3at PoE+ PD)
- **1 × 10/100/1000BASE-T LAN port**
- Dual-band high-gain external antennas for extended outdoor coverage
- IP-rated weatherproof housing with wide temperature support (**-40°C ~ 70°C**)

Multiple Operation Modes and Wireless Features

- Flexible operation modes: **Gateway**, **AP**, **Repeater**, **WISP**
- Supports up to **8 SSIDs (4 per band)** with VLAN-to-SSID mapping
- Wi-Fi Multimedia (WMM) for optimized audio/video streaming
- Real-time Wi-Fi channel analysis chart for interference management
- Seamless roaming with 802.11k/v/r to ensure uninterrupted client mobility

Flexible External Antenna Deployment for Extended Coverage

The WDAP-5100BE is equipped with 5 x N-Type connectors (2x2 for 2.4GHz + 3x3 for 5GHz), allowing for flexible antenna selection to match deployment needs. This advanced Wi-Fi 7 architecture enhances beamforming gain and receive sensitivity, significantly improving uplink stability. By maintaining higher MCS rates at longer distances, it outperforms traditional 2x2 solutions, making it ideal for high-density environments and mission-critical surveillance uplinks.



Secure Network Connection

- Comprehensive wireless security with WPA3 Personal, WPA2/WPA3 Personal, WPA2 Enterprise, WPA/WPA2 Enterprise
- VLAN support with SSID-to-VLAN mapping, plus IP/MAC filtering and client isolation
- Enhanced security with ACL management to prevent unauthorized access

Easy Deployment and Centralized Management

- Powered by 802.3at PoE+, simplifying installation by combining power and data through a single Ethernet cable
- Fully compatible with PLANET CloudNMS platform and mobile app, and AP Controllers, enabling centralized monitoring and management
- Self-healing mechanism through system auto-reboot scheduling
- User-friendly Web GUI and setup wizard for quick configuration and monitoring

Enterprise-Grade Security and Seamless Mobility

Designed with enterprise-class wireless security and mobility in mind, the WDAP-5100BE supports WPA3 encryption, SSID-to-VLAN segmentation, seamless roaming mechanisms, and advanced access control capabilities. Users and devices can move across expansive outdoor environments without experiencing service interruption, making the AP ideal for campus facilities, resort complexes, municipal outdoor networks, and other large open-air deployments requiring stable and secure connectivity.

PLANET CloudNMS – Cloud-Based Universal Network Management

PLANET's **CloudNMS** platform and mobile app empower IT staff to remotely manage all network devices and Powered Devices (PDs) in real time. Designed for enterprises and industries, CloudNMS minimizes the need for on-site troubleshooting by providing centralized monitoring, fault detection, and instant alerts.

With **CloudNMS**, businesses can manage diverse network deployments more **efficiently**, **securely**, **and intelligently**—all from a single cloud-based platform.

Applications

High-Bandwidth Smart City & Surveillance

The WDAP-5100BE is optimized for smart city deployments, offering high wireless throughput for outdoor **surveillance** and public internet access. Its **3x3 5GHz architecture** enhances uplink performance, ensuring stable video transmission even in interference-heavy urban environments.

Extreme Industrial Environments

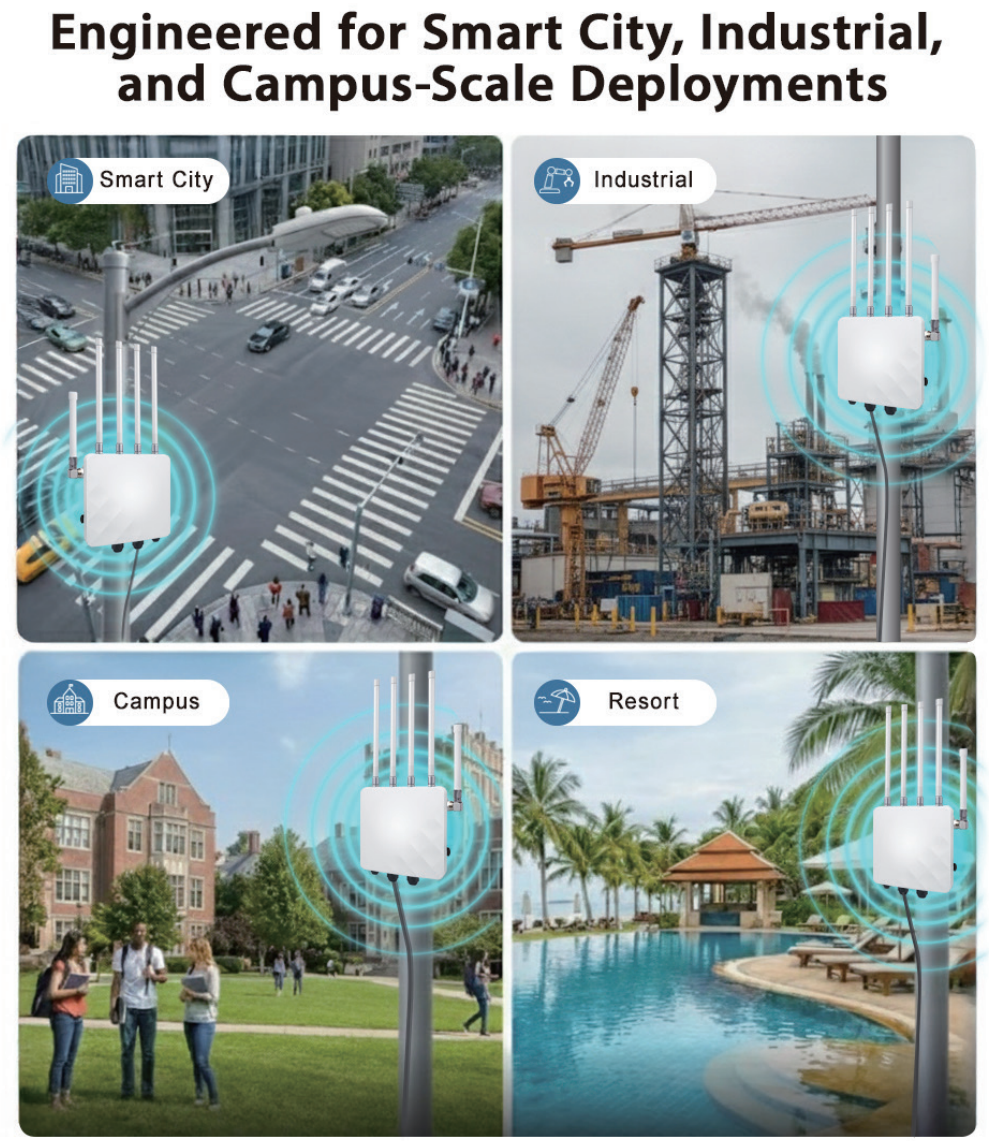
Engineered with a rugged **IP67-rated metal enclosure**, the WDAP-5100BE withstands dust, water exposure, and extreme temperatures ranging from **-40°C to 70°C**. It provides reliable wireless connectivity for automation systems and outdoor industrial deployments, including and cold chain logistics and harsh industrial environments.

Long-Range Rural & Campus Connectivity

Ideal for expansive resorts, agricultural fields, and large campuses, the WDAP-5100BE features enhanced receive sensitivity to deliver **extended wireless coverage**. It serves as a powerful solution for wireless bridging or connecting remote IoT sensors across vast open spaces.

Ultra-High-Density Public Venues

Designed for crowded stadiums, festivals, and transportation hubs, the WDAP-5100BE leverages Wi-Fi 7 capabilities to deliver high aggregated wireless throughput.. It efficiently manages high client density, ensuring smooth data transmission for multiple concurrent users in outdoor hotspots environments.



Specifications

Product	WDAP-5100BE
Hardware Specifications	
Interfaces	WAN/PoE: 1 x 100/1000/2500BASE-T RJ45 port LAN: 1 x 10/100/1000BASE-T RJ45 port Auto-negotiation and auto MDI/MDI-X
Antennas Connectors	2 x 2.4GHz N-Type Connectors 3 × 5GHz N-Type Connectors
Reset Button	Reset button on the rear side (Press over 5 seconds to reset the device to factory default.)
LED Indicators	6 × Green LEDs for Power, System, LAN, WAN, 2.4GHz, and 5GHz status
Dimensions (W × D × H)	243.16 × 218.26 × 64.04 mm (without antennas)
Weight	2.0 kg
Material	Aluminum
Power Requirements	IEEE 802.3at PoE (End-span, not support Mid-span), DC 12V/2A
Power Consumption	Max. 5.9 watts / 20.12 BTU (Power on without any connection) Max. 10.5 watts / 35.81 BTU (Full loading)
Mounting	Mast mounting
IP Level	IP67
ESD Protection	±8kV air gap discharge ±6kV contact discharge
Surge Protection	2KV (Common Mode), ±1KV (Differential Mode)
Wireless Interface Specifications	
Standard	**5GHz:** IEEE 802.11be IEEE 802.11ax IEEE 802.11ac IEEE 802.11n IEEE 802.11a **2.4GHz:** IEEE 802.11be IEEE 802.11ax IEEE 802.11n IEEE 802.11b IEEE 802.11g IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BASE-T IEEE 802.3bz 2500BASE-T IEEE 802.3x flow control IEEE 802.11k, 802.11v, and 802.11r* IEEE 802.11i
Media Access Control	CSMA/CA
Data Modulation	802.11be: MIMO-OFDM/OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM / 4096QAM) 802.11ax: MIMO-OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM, 1024QAM) 802.11ac: MIMO-OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11b: DSSS (DBPSK / DQPSK / CCK)
Band Mode	2.4GHz / 5GHz concurrent mode
Frequency Range	**2.4GHz:** FCC: 2.412~2.462GHz ETSI: 2.412~2.472GHz **5GHz:** FCC: 5.180~5.240GHz, 5.745~5.825GHz ETSI: 5.180~5.700GHz
Operating Channels	**ETSI:** 2.4GHz: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (13 Channels) 5GHz: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120,124,128,132, 136, 140 (19 channels) **FCC:** 2.4GHz: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (11 channels) 5GHz: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116,120,124,128,132, 136, 140, 149, 153, 157, 161,165 (24 channels) **5GHz channel list may vary in different countries according to their regulations.**

Wireless Interface Specifications			
Standard	**5GHz:** IEEE 802.11be IEEE 802.11ax IEEE 802.11ac IEEE 802.11n IEEE 802.11a **2.4GHz:** IEEE 802.11be IEEE 802.11ax IEEE 802.11n IEEE 802.11b IEEE 802.11g IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BASE-T IEEE 802.3bz 2500BASE-T IEEE 802.3x flow control IEEE 802.11k, 802.11v, and 802.11r* IEEE 802.11i		
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Data Modulation	802.11be: MIMO-OFDM/OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM / 4096QAM) 802.11ax: MIMO-OFDMA (BPSK / QPSK / 16QAM / 64QAM / 256QAM, 1024QAM) 802.11ac: MIMO-OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11b: DSSS (DBPSK / DQPSK / CCK)		
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	FCC: 2.4GHz: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (11 channels) 5GHz: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116,120,124,128,132, 136, 140, 149, 153, 157, 161,165 (24 channels)		
	5GHz channel list may vary in different countries according to their regulations.		
Max. Transmit Power (dBm)	FCC: up to 24 ± 2dBm ETSI: < 19dBm (EIRP)		
Max. Transmit Power (dBm)	**Network Mode**	**Data Rate**	**Max. Transmit Power (dBm)**
	2.4G Power		
	802.11b	11M	24 ± 2
		1M	24 ± 2
	802.11g	54M	21 ± 2
		6M	23 ± 2
	802.11n HT20	MCS7	20 ± 2
		MCS0	22 ± 2
	802.11n HT40	MCS7	20 ± 2
		MCS0	22 ± 2
	802.11ax HE20	MCS11	18 ± 2
		MCS0	22 ± 2
	802.11ax HE40	MCS11	18 ± 2
		MCS0	22 ± 2
	802.11be EHT20	MCS13	18 ± 2
		MCS0	22 ± 2
	802.11be EHT40	MCS13	18 ± 2
		MCS0	22 ± 2

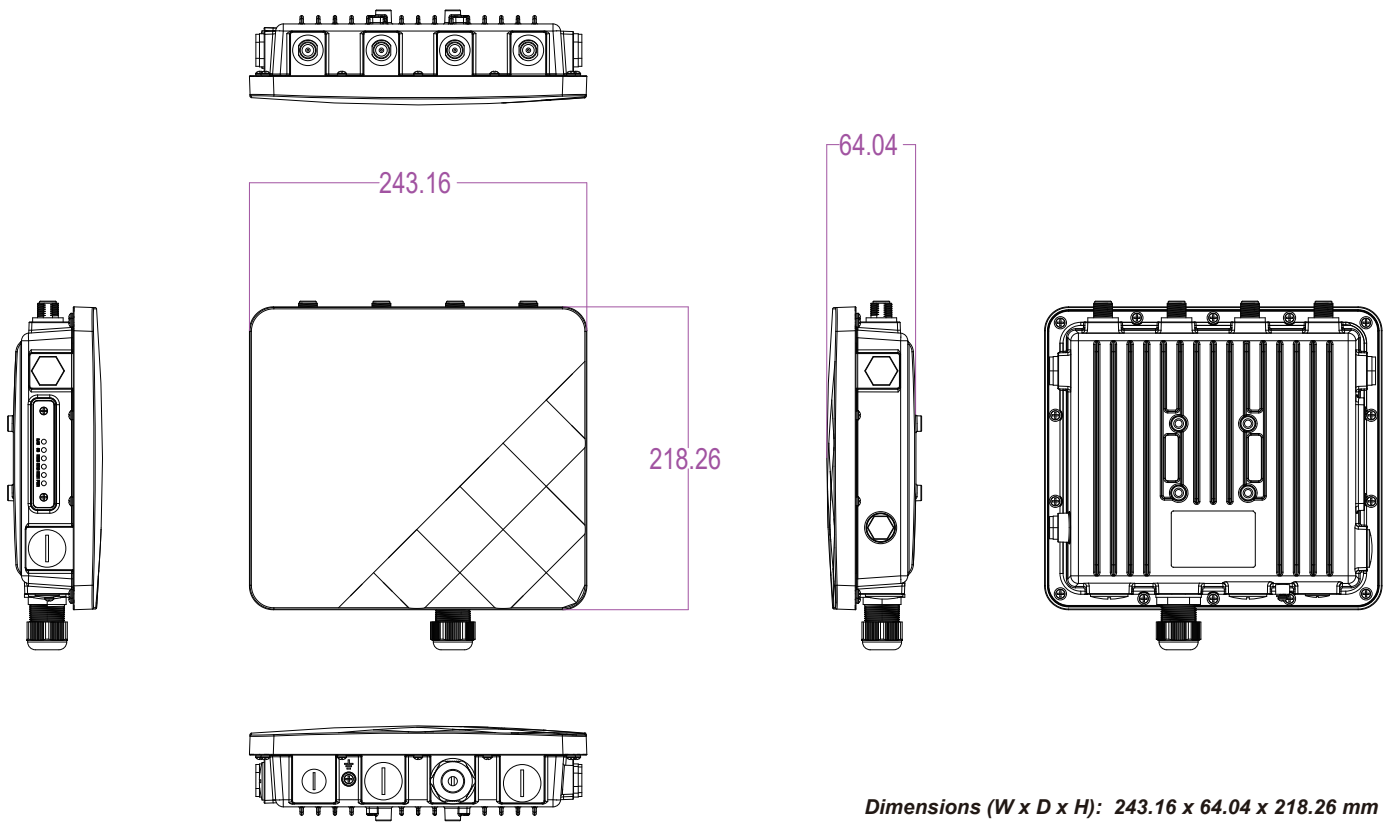
Max. Transmit Power (dBm)	**5G Power**		
	802.11a	54M	19 ± 2
		6M	21 ± 2
	802.11n HT20	MCS7	16 ± 2
		MCS0	19 ± 2
	802.11n HT40	MCS7	16 ± 2
		MCS0	19 ± 2
	802.11ac VHT20	MCS7	16 ± 2
		MCS0	19 ± 2
	802.11ac VHT40	MCS7	16 ± 2
		MCS0	19 ± 2
	802.11ac VHT80	MCS9	15 ± 2
		MCS0	19 ± 2
	802.11ax HE20	MCS11	16 ± 2
		MCS0	19 ± 2
	802.11ax HE40	MCS11	16 ± 2
		MCS0	19 ± 2
	802.11ax HE80	MCS11	15 ± 2
		MCS0	19 ± 2
	802.11ax HE160	MCS11	15 ± 2
		MCS0	19 ± 2
	802.11be EHT20	MCS13	15 ± 2
		MCS0	19 ± 2
	802.11be EHT40	MCS13	15 ± 2
		MCS0	19 ± 2
	802.11be EHT80	MCS13	14 ± 2
		MCS0	19 ± 2
	802.11be HT160	MCS13	14 ± 2
		MCS0	19 ± 2
Receive Sensitivity	**Network Mode**	**Data Rate**	**Receive Sensitivity (dBm)**
	2.4GHz		
	802.11b	11Mbps	-88
		1Mbps	-97
	802.11g	54Mbps	-75
		6Mbps	-92
	802.11n HT20	MCS7	-72
		MCS0	-92
	802.11n HT40	MCS7	-68
		MCS0	-88
	802.11ax HE20	MCS11	-63
		MCS0	-92
	802.11ax HE40	MCS11	-58
		MCS0	-88
	802.11be EHT20	MCS13	-58
		MCS0	-88
	802.11be EHT40	MCS13	-56
		MCS0	-86
	5GHz		
	802.11a	54Mbps	-75
		6Mbps	-95
	802.11n HT20	MCS7	-72
		MCS0	-92
	802.11n HT40	MCS7	-70
		MCS0	-88
	802.11ac VHT20	MCS7	-68
		MCS0	-88
	802.11ac VHT40	MCS7	-63
		MCS0	-86
	802.11ac VHT80	MCS9	-60
		MCS0	-84
	802.11ax HE20	MCS11	-60
		MCS0	-88

Receive Sensitivity	**802.11ax HE40**	MCS11	-58
		MCS0	-86
	802.11ax HE80	MCS11	-54
		MCS0	-84
	802.11ax HE160	MCS11	-52
		MCS0	-82
	802.11be EHT20	MCS13	-54
		MCS0	-86
	802.11be EHT40	MCS13	-52
		MCS0	-84
	802.11be EHT80	MCS13	-50
		MCS0	-82
	802.11be EHT160	MCS13	-48
		MCS0	-80
2.4G EVM	802.11b : ≤-10dB; 802.11g : ≤-25dB; 802.11n : ≤ -28dB; 802.11ax : ≤ -35dB; 802.11be : ≤-38dB		
5G EVM	802.11a : ≤-25dB; 802.11n : ≤-28dB; 802.11ac : ≤ -32dB; 802.11ax : ≤ -35dB; 802.11be : ≤-38dB		
Software Features			
LAN	Static IP / Dynamic IP		
WAN	Static IP Dynamic IP PPPoE / PPTP / L2TP		
Wireless Mode	Access Point Gateway Repeater WISP		
Channel Width	20MHz, 40MHz, 80MHz, 160MHz		
Encryption Security	WPA3 Personal WPA2/WPA3 Personal WPA2 Personal (AES) WPA2 Personal (TKIP) WPA2 Personal (TKIP+AES) WPA/WPA2 Personal (AES) WPA/WPA2 Personal (TKIP) WPA/WPA2 Personal (TKIP+AES) WPA2 Enterprise (802.1X) WPA/WPA2 Enterprise (802.1X)		
Supported EAP Methods	EAP - Transport Layer Security (TLS) EAP-Tunneled TLS (TTLS) + Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) Protected EAP (PEAP) v0 + EAP-MSCHAPv2 PEAP v1 + EAP-Generic Token Card (GTC)		
Wireless Security	Enable/Disable SSID broadcast Wireless max. 32 MAC address filtering User isolation		
Max. SSIDs	8 (4 per radio)		
Max. Clients	256 (128 is suggested, depending on usage)		
Wireless QoS	Supports Wi-Fi Multimedia (WMM)		
Wireless Advanced	Auto Channel Selection 5-level Transmit Power Control Max (100%), Efficient (75%), Enhanced (50%), Standard (25%) or Min (15%) Client Limit Control, Coverage Threshold Wi-Fi channel analysis chart Seamless roaming Beamforming BSS coloring		
Status Monitoring	Device status, wireless client List PLANET Smart Discovery DHCP client table System Log supports remote syslog server		
VLAN	IEEE 802.1Q VLAN (VID: 1~4094) SSID-to-VLAN mapping to up to 4 SSIDs		
Self-healing	Supports auto reboot settings per day/hour		

Management	Remote management through PLANET DDNS/ Easy DDNS Configuration backup and restore Supports UPnP* Supports IGMP Proxy Supports PPTP/L2TP/IPSec VPN Pass-through Supports Captive Portal*, RADIUS Server/Client
Central Management	Applicable controllers: NMS APC, WS APC, VR/IVR APC, ICG APC, PLANET CloudNMS
Environment & Certification	
Temperature	Operating: -40~ 70 degrees C Storage: -40 ~ 70 degrees C
Humidity	Operating: 10 ~ 90% (non-condensing) Storage: 5 ~ 95% (non-condensing)
Regulatory	CE, RoHS

Remarks [*]: The feature will be supported through firmware/system upgrade.
Note: Optional accessories, such as antenna adapters, are not included.

Dimensions



Dimensions (W x D x H): 243.16 x 64.04 x 218.26 mm

Ordering Information

WDAP-5100BE	Wi-Fi 7 Dual Band 802.11be 5100Mbps Outdoor Wireless Access Point

Related Antenna & Cable Accessories

ANT-FP14D	2x2 MIMO 2.4GHz 14dBi Flat-Panel Dual Polarization Direction Antenna
ANT-FP14AD	2x2 MIMO 5GHz 14dBi Flat-Panel Dual Polarization Direction Antenna
ANT-FP18	2.4GHz 18dBi Flat-Panel Direction Antenna
ANT-FP18A	5GHz 18dBi Flat-Panel Direction Antenna
ANT-SE17D	2x2 MIMO 2.4GHz 17dBi Sector Antenna
ANT-SE17AD	2x2 MIMO 5GHz 17dBi Sector Antenna
ANT-OM5D-KIT	2.4G/5GHz Dual Band Omni-directional Antenna
ANT-OM8	2.4GHz 8dBi Omni-directional Antenna
ANT-OM15	2.4GHz 15dBi Omni-directional Antenna
ANT-OM10A	5GHz 10dBi Omni-directional Antenna
WL-NM-0.6	0.6-meter N-male Connector to N-male Connector Cable
WL-N-0.6	0.6 Meter N-male (female pin) to N-male (male pin) Cable
WL-MF-0.6	0.6 Meter N-male (female pin) to N-male (male pin) Cable
WL-LTNA	2.4/5GHz Lightning Arrester (N-male to N-female)

Related Wireless Products

WDAP-3600BE	Wi-Fi 7 Dual Band 802.11be 3600Mbps Outdoor Wireless Access Point
IAP-3600BE	Industrial Dual Band 802.11be 3600Mbps Wireless Access Point with 5 10/100/1000T LAN Ports
WDAP-C5100BE	Dual Band 802.11be 5100Mbps Ceiling-mount Wireless Access Point w/802.3at PoE+ 1 10/100/1000/2500T Port and 1 10/100/1000T LAN Port
WDAP-W3600BE	Wi-Fi 7 Dual Band 802.11be 3600Mbps In-wall Wireless Access Point
WDAP-3000AX	Dual Band 802.11ax 3000Mbps Outdoor Wireless AP
WDAP-C3000AX	Dual Band 802.11ax 3000Mbps Ceiling-mount Wireless Access Point w/802.3at PoE+ and 2 10/100/1000T LAN Ports
WDAP-W3000AX	Dual Band 802.11ax 3000Mbps In-wall Wireless Access Point

* To have the best performance and wireless connection, matching it with the above-related products is recommended.

Related PoE & APC Products

MGS-6311-8P2X	L3 8-Port 2.5GBASE-T 802.3at PoE + 2-Port 10GBASE-X SFP+ Managed Ethernet Switch
MGS-6311-24UPL6X	L3 24-Port 2.5GBASE-T 802.3bt PoE + 6-Port 10GBASE-X SFP+ Managed Ethernet Switch
POE-165	Single-Port Multigigabit 802.3at PoE+ Injector (30 Watts)
IPOE-175	Industrial IP67 1-Port 60W 802.3bt PoE++ Injector
MGS-910XP	8-Port 10/100/1000/2500T 802.3at PoE+ + 1-Port 10G SFP+ Multigigabit Ethernet Switch (120 Watts)
IGS-6325-4UP2X	Industrial L3 4-Port 2.5GBASE-T 802.3bt PoE + 2-Port 10G SFP+ Managed Ethernet Switch
IGS-1000-4UP2X	Industrial 4-Port 10/100/1000/2500T 802.3bt PoE + 2-Port 10G SFP+ Ethernet Switch
WGS-6325-8UP2X	Industrial L3 4-Port 2.5G 802.3bt PoE + 4-Port 10/100/1000T 802.3bt PoE + 2-Port 10G SFP+ Wall-mount Managed Switch
VR-300P	Enterprise 4-Port 10/100/1000T 802.3at PoE + 1-Port 10/100/1000T VPN Security Router (AP controller)
VR-300FP	Enterprise 4-Port 10/100/1000T 802.3at PoE + 1-Port 1000X SFP VPN Security Router (AP controller)
NMS-500	Enterprise-class Universal Network Management Controller - 500 nodes, 5 10/100/1000T LAN Ports
NMS-1000V	Universal Network Management Controller with LCD Touch Screen (10”/12”)
UNC-NMS	Universal Network Management Central Controller with LCD & 6 10/100/1000T LAN Ports (1024 x 100 nodes)
PLANET CloudNMS	Cloud-Based Universal Network Management System

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