ZYXEL NETWORKS

IAP500BE

BE5000 4-Stream WiFi 7 Dual-Radio NebulaFlex Pro Industrial Access Point

Zyxel's IAP500BE is a dual-radio (2.4GHz + 5GHz) WiFi 7 industrial-grade access point delivering speeds up to 5012 Mbps, purpose-built to meet the connectivity demands of Industry 4.0. Ideal for SMB manufacturing, processing, and industrial operations, it provides ultra-low latency, multi-gigabit performance, and rugged reliability for smart factories, automated processes, and real-time IoT applications.

Its fanless metal enclosure ensures efficient heat dissipation, silent operation, and a wide temperature tolerance (-25°C to 65°C). Redundant dual power inputs with reverse polarity protection, combined with 6KV lightning protection and 15KV ESD protection, safeguard against power fluctuations and surges to ensure fail-safe operation.

The IAP500BE delivers continuous, reliable connectivity in challenging industrial environments. Advanced RF filtering and interference mitigation maintain stable WiFi performance in areas crowded with 4G/5G signals or heavy machinery, while wireless mesh extends coverage to remote locations, mobile AGVs, or surveillance systems. When operating in repeater mode, the LED indicators instantly validate on-site signal strength. DIN-rail and wall-mount support enable seamless installation in factory cabinets, racks, and industrial environments.

For managed apartments or condos, the IAP500BE supports cabinet-friendly deployment with an optional magnetic-mounted external antenna for extended coverage, while NAT support enables seamless private IP distribution to downstream devices.

Powered by NebulaFlex Pro, it supports standalone, cloud-managed, or controller-managed modes, with versatile deployment options including DIN-rails, mobile vehicles, and hidden cabinets—ensuring reliable coverage wherever needed.

Datasheet IAP500BE

- Dual-radio WiFi 7 with 2×2 MU-MIMO delivers seamless, ultra-low latency performance up to 4324Mbps (5GHz) and 688Mbps (2.4GHz) for Industry 4.0.
- Durable metal, fanless design for efficient heat dissipation and quiet operation
- Industrial-grade -25°C to 65°C tolerance ensures reliable performance in harsh environments
- Redundant dual power inputs and reverse polarity protection for high network resilience
- 6KV lightning protection and 15KV ESD protection
- Flexible Deployment: Easily installs on DIN-rails, wall mount, or enclosed cabinets with additional external antenna

Benefits

WiFi 7: Future-Ready Performance, Backward-Compatible Reliability for Industry 4.0.

WiFi 7 is purpose-built to meet the rigorous demands of Industry 4.0, combining ultra-low latency with multi-gigabit throughput to ensure seamless operation of robotics, automated guided vehicles (AGVs), and real-time IoT data streams. Its advanced spectrum efficiency and ability to handle high-density device environments guarantee stable, interference-resistant performance, even in factories crowded with wireless systems and heavy machinery.

Backward compatibility with WiFi 6/6E (ax) and WiFi 5 (ac) ensures a smooth transition, allowing enterprises to deploy WiFi 7 while maintaining support for existing infrastructure. This makes WiFi 7 not only a high-performance solution for today's industrial automation, predictive maintenance, and smart factory applications, but also a future-ready backbone for evolving industrial networks.

Robust Industrial Design

The IAP500BE is engineered to withstand the tough industrial environments. Its durable metal enclosure with a fanless design ensures efficient heat dissipation and silent operation, while industrial-grade temperature tolerance (-25°C to 65°C) allows reliable performance in extreme conditions. Built to meet industry standards including 6KV lightning protection and 15KV ESD protection, it delivers resilient operation even in high-interference environments.

DIN-rail mounting support allows seamless integration into factory racks, and redundant power options with reverse polarity protection ensure continuous, fail-safe operation. Advanced RF filtering and interference mitigation maintain stable wireless performance, while wireless mesh capability enables flexible coverage extension to remote locations, mobile equipment, and complex industrial layouts.

Flexible Wireless Connectivity for Industrial Networks

Zyxel's IAP500BE brings exceptional flexibility and reliability to industrial factory environments with its Smart Mesh and Wireless Bridge capabilities. Smart Mesh is particularly beneficial in dynamic factory settings where cabling is impractical or costly—it creates a self-organising wireless network that automatically adapts to interference, layout changes, or equipment movement.

This ensures continuous connectivity for production lines, sensors, and mobile devices across expansive or obstructed areas. Complementing this, the Wireless Bridge function enables secure, high-throughput point-to-point or point-to-multipoint links between separate facilities—such as connecting a main control room to a distant warehouse or workshop—without the need to lay Ethernet cables. This makes it ideal for extending network access across large industrial complexes or outdoor areas, delivering reliable data flow and seamless integration between network segments.

MLO: Multi-Band Reliability for Ultra-Low Latency in Industry 4.0.

Multi-Link Operation (MLO) is a key feature of WiFi 7 that significantly enhances connectivity for Industry 4.0 environments. By enabling devices to transmit and receive data simultaneously across multiple frequency bands, MLO reduces latency, increases throughput, and improves reliability—even in high-density or interference-prone industrial settings. This ensures real-time responsiveness for critical applications such as robotics, automated guided vehicles (AGVs), and IoT sensor networks.

MLO also provides seamless link redundancy, so if one band experiences interference or congestion, traffic can immediately shift to another, maintaining uninterrupted operations. For smart factories and highly automated production lines, MLO delivers the low-latency, high-capacity wireless backbone required to support efficient, connected Industry 4.0 workflows.

NebulaFlex Pro – simply manage it your way!

NebulaFlex Pro provides extended deployment flexibility, allowing users to switch seamlessly among standalone, on-premises controller, or Nebula Control Center (NCC) cloud-managed modes at any time—without additional cost—protecting your wireless technology investment. For organizations that prefer to keep data on-site, standalone or controller-managed modes ensure full control without relying on the cloud.

Upon registering on Nebula, users receive a one-year Professional Pack, which includes wireless health monitoring, sitewide topology, and 365-day statistics for devices and clients, along with upcoming advanced features available on NCC and its mobile app.

Specifications

Model		IAP500BE
Product name		BE5000 4-Stream WiFi 7 Dual-Radio NebulaFlex Pro Industrial Access Point
		
Wireless		
Standard		IEEE802.11 be/ax/ac/n/g/b/a
MIMO		MU-MIMO
Wireless speed	**2.4GHz**	688Mbps
	5GHz	4324Mbps
Frequency band	**2.4GHz**	• USA (FCC): 2.412 to 2.462GHz • Europe (ETSI): 2.412 to 2.472GHz
	5GHz	• USA (FCC): 5.15 to 5.35GHz; 5.470 to 5.850GHz • European (ETSI): 5.15 to 5.35GHz; 5.470 to 5.725GHz
Bandwidth		20-, 40- ,80-, 160- and 240-MHz
Conducted typical transmit output power*[1]	**US (2.4GHz/5GHz)**	25/26dBm
	EU (2.4GHz/5GHz)	16/26dBm
RF Design		
Antenna type		External Antenna
Antenna gain	**2.4GHz**	2dBi, 2×2:2SS
	5GHz	3dBi, 2×2:2SS
Minimum receive sensitivity		Min. Rx sensitivity up to -99 dBm
WLAN Features		
Band Steering		Yes
WDS/ Smart Mesh*[2]		Yes
Wireless Bridge		Yes
Fast roaming		Pre-authentication, PMK caching and 802.11r/k/v
DCS		Yes
Load balancing		Yes
Advanced Cellular Coexistence		Yes
Secuity		
Encryption		WEP/ WPA/WPA2/WPA3
Authentication		IEEE 802.1X/ RADIUS authentication
Access management		L2-isolation/MAC filtering/Rogue AP detection
Networking		
IPv6		Yes
VLANs		Yes
WMM		Yes
U-APSD		Yes

Model		IAP500BE
Management		
Operating mode		Nebula cloud-managed/Controller-managed /Standalone
Web UI/CLI		Yes
SNMP		Yes
Physical Specifications		
Item	**Dimensions (WxDxH)(mm/in.)**	125 × 130 × 35 / 4.92 × 5.12 × 1.38 (without Antenna)
	Weight (g/lb.)	646 / 1.42
Packing	**Dimensions (WxDxH)(mm/in.)**	160 × 180 × 50 / 6.30 × 7.09 × 1.96
	Weight (g/lb.)	864 / 1.90
Included accessories		• Din rail mount • Two 2.4GHz/5GHz detachable antennas
MTBF (hr)		631,165
Physical Interfaces		
Ethernet port		1 × 1/2.5GbE LAN
Power		• PoE (802.3at): power draw 24W • DC input : 12V-48V redundant dual input
PoE modes	**IEEE 802.3af**	Not supported
	IEEE 802.3at	Unrestricted
	IEEE 802.3bt	Unrestricted
Environmental Specifications		
Operating	**Temperature**	-25°C to 65°C/-13°F to 149°F
	Humidity	10% to 90% (non-condensing)
Storage	**Temperature**	-40°C to 70°C/-40°F to 158°F
	Humidity	10% to 90% (non-condensing)

Certifications	
Radio	FCC Part 15C, FCC Part 15E,FCC Part 2.1091, ETSI EN 300 328, EN 301 893,Draft EN 303 687, EN 50385, EN 50665, EN IEC 62311, LP0002
EMC	FCC Part 15B, EN 301 489-1, EN 301 489-17, EN55032, EN55035, EN61000-3-2/-3, EN60601-1-2, BSMI CNS15936
Safety	EN 62368-1, IEC 62368-1, BSMI CNS15598-1

∗1: Maximum transmit power is limited by local regulatory settings.
∗2: WDS, Smart Mesh and Industry's Open Mesh, Easy Mesh are different mesh systems that do not work with one another.

For more product information, visit us on the web at www.zyxel.com

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