ZYXEL
NETWORKS

WBE630S
BE12300 WiFi 7 Dual-Radio NebulaFlex Pro Access Point

Designed for educational settings, the WBE630S features a Qualcomm quad-core CPU and durable hardware, delivering lightning-fast speeds of up to 12.3Gbps and significantly increased capacity to ensure students have a seamless online experience.

Its flexible BandFlex radio can support either 5GHz or 6GHz by configuration, making it the ideal choice for fitting into your existing 5GHz coverage while also future-proofing the use of 6GHz.

The WBE630S incorporates unique Smart Antenna technology, an upgrade from dual-optimized antennas, automatically adapting antenna patterns for peak performance, effectively minimizing interference and ensuring optimal WiFi connectivity and coverage across diverse scenarios and mounting options.

Coupled with Zyxel Nebula's cloud networking capabilities, it unleashes the full potential of WiFi 7's MLO connectivity and reliability to meet the demands of today's educational applications. Digital learning, hybrid learning, and VR/AR can also take advantage of its incredible speeds, ensuring a seamless learning experience devoid of any latency.

The WBE630S with NebulaFlex Pro provides users with complete flexibility to switch between standalone, on-premises controller, or intuitive Nebula cloud-managed modes as needed. It comes bundled with a 1-year Nebula Professional Pack license, eliminating upfront licensing costs when transitioning to full-featured cloud management.

BE 802.11 — BE12300 (2.4GHz: 2x2:2, 5 or 6GHz: 4x4:4) dual-radio access point offers blazingly fast WiFi 7 speeds of up to 12.3Gbps, ensuring lower latency for real-time responsiveness

BandFlex design supports either 5GHz or 6GHz by configuration, fitting seamlessly into existing 5GHz coverage while futureproofing for 6GHz

Smart antenna technology automatically adapts antenna patterns to optimize WiFi performance

WiFi 7's MLO enables simultaneous data transmission across 2.4GHz, 5GHz, and 6GHz bands, boosting speed, reducing latency, and enhancing reliability

Advanced Cellular Coexistence minimizes interferences from 4G/5G cellular networks

NebulaFlex Pro allows users to switch between standalone, on-premises controller, or intuitive Nebula cloud managed modes as needed

nebula

Zyxel **one** network
Redefining network integration

Benefits

Bringing next generation WiFi within reach

WiFi 7, also known as IEEE 802.11be, represents the next evolution in WiFi standards, supporting all three frequency bands – 2.4GHz, 5GHz, and 6GHz. With its revolutionary technological advancements, it promises to redefine the concept of speed, delivering unprecedented rates to elevate online experiences in the digital realm.

Coupled with Zyxel's comprehensive range of management and security innovations, the WBE630S ensures the utmost connectivity and cybersecurity for the most demanding environments.

MLO: Transforming WiFi 7 for unprecedented connectivity

Fundamentally, one of the most pioneering advancements of WiFi 7 is the introduction of MLO (Multiple Link Operation). MLO represents a WiFi technology that empowers devices linked to a WiFi access point (AP) to concurrently transmit and/or receive data through various frequency bands and channels. This entails simultaneous connections across the 2.4GHz, 5GHz, and 6GHz bands, a capability absent in earlier WiFi generations where devices were restricted to a solitary WiFi band connection.

The result is a significant amplification in data throughput, a reduction in latency, and an enhancement in reliability. These outcomes undeniably enhance the user experience and unveil novel opportunities for emerging applications such as VR/AR, online gaming, remote office setups, and cloud computing.

Enhancing WiFi performance: The versatility of Smart Antenna technology

The unique Smart Antenna technology, an advanced upgrade from dual-optimized antennas, automatically adapts its antenna patterns to achieve peak performance, effectively minimizing interference and ensuring optimal WiFi connectivity and coverage across a wide range of diverse scenarios, from crowded classrooms to expansive open spaces, and it is suitable for any kind of mounting, including ceiling and wall installations.

RF first by design

The advanced RF filter design eliminates interference between the 5GHz and 6GHz bands, while the built-in 4G/5G interference filter allows seamless coexistence with 4G/5G cellular networks and minimizes interference, all of which guarantees a seamless WiFi experience without interruptions.

Additionally, 4K QAM (MCS-13) requires a good Signal-to-Noise Ratio (SNR). The rectangular design helps maintain excellent isolation between antennas, meeting this requirement more effectively than a circular design.

NebulaFlex Pro – simply manage it your way!

The NebulaFlex Pro provides extended flexibility, allowing users to easily switch among standalone, on-promises controller or our intuitive NCC (Nebula Control Center) modes any time according to your needs without additional cost while protecting wireless technology investments. The privilege of one-year professional pack you can get once upon registration on Nebula includes wireless health, site-wide topology, 365-day statistics on the devices and clients monitoring along with more upcoming advanced features on NCC and its App.

Nebula, the intelligent cloud management

Nebula offers comprehensive monitoring and reporting capabilities, including real-time notifications for critical events via the mobile app. With Nebula, you can enjoy a streamlined experience for network installation and management, without the need for an additional cost for software or hardware controllers.

- **Automated WLAN management & optimization**
  With features like WiFi Aid and Wireless health, Nebula enables automated wireless network management and optimization, ensuring the best possible WiFi user experience.
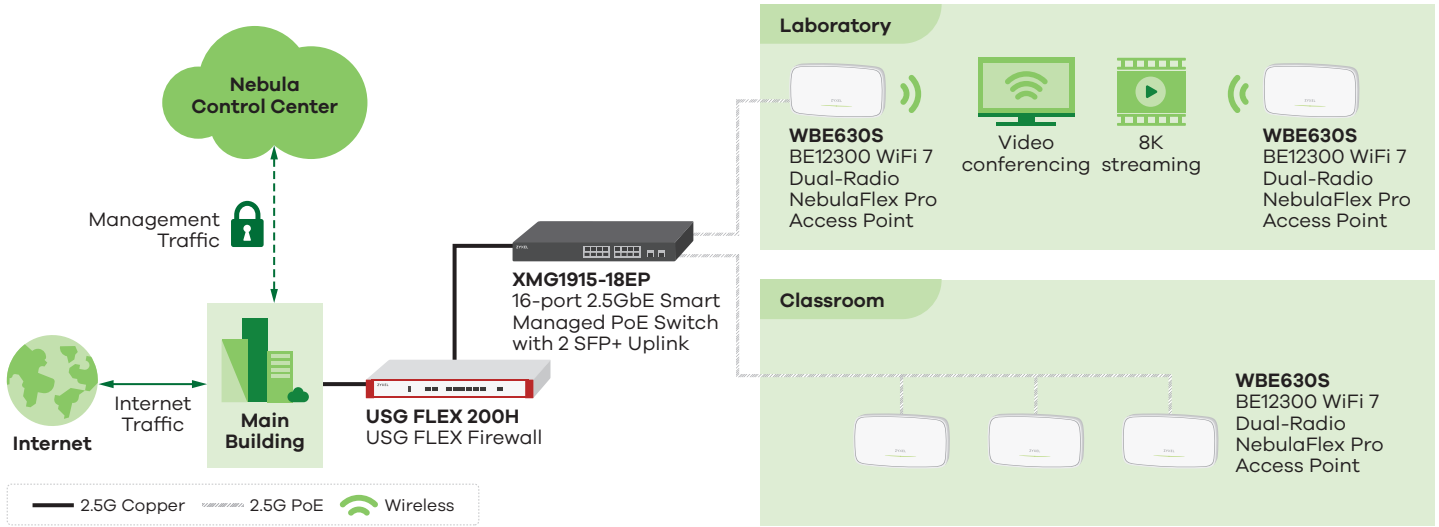
- **Enhanced privacy & security**
  A range of security add-on features like CDR, Secure WiFi, CNP+, DPPSK, and advanced authentication methods work together to create a robust and protected environment for your network.

Optimized wireless experience with advanced features

The WBE630S ensures an optimized wireless experience for users with a range of wireless features such as Dynamic Channel Selection (DCS), Load Balancing and Smart Client Steering. DCS minimizes the interference of co-channel and overlapping channels. Load Balancing enables administrators to set limits on the number of clients associated with each AP. Furthermore, Smart Client Steering features with Band Select, Signal Threshold and Band Balancing combine to deliver stable, reliable wireless connections. Band Select and Signal Threshold monitor the capabilities of each wireless client and steer them to the less-congested band and AP with better signals. Band Balancing detects dual-radio and triple-radio clients and distributes clients across 2.4GHz, 5GHz, and 6GHz bands on AP. All of these deliver a smooth, consistent and uninterrupted wireless experience to its users.

Application Diagram

- ▬ 2.5G Copper
- ⋯ 2.5G PoE
- 📶 Wireless

Specifications

Model	WBE630S
Product name	BE12300 WiFi 7 Dual-Radio NebulaFlex Pro Access Point

Wireless		
Standard		IEEE 802.11 be/ax/ac/n/g/b/a
MIMO		MU-MIMO
Wireless speed	2.4GHz	688Mbps
	5GHz	8646Mbps
	6GHz	11530Mbps
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
	6GHz	• USA (FCC): 5.925 to 6.425GHz; 6.525 to 7.125GHz • European (ETSI): 5.925 to 6.425GHz
Bandwidth		20-, 40-, 80-, 160-, 240- and 320-MHz
Conducted typical transmit output power*[1]	US (2.4GHz/5GHz/6GHz)	26/28/25dBm
	EU (2.4GHz/5GHz/6GHz)	19/26/22dBm

RF Design		
Antenna type		Smart antenna
Antenna gain	2.4GHz	1.49dBi, 2x2:2SS
	5GHz	2.78dBi, 4x4:4SS
	6GHz	3.17dBi, 4x4:4SS
Minimum receive sensitivity		Min. Rx sensitivity up to -99dBm

*1: Maximum transmit power is limited by local regulatory settings.

Model	WBE630S
WLAN Feature	
Band steering	Yes
WDS/Mesh*²	Yes
Fast roaming	Pre-authentication, PMK caching and 802.11r/k/v
DCS	Yes
Load balancing	Yes
Advanced cellular coexistence	Yes
Security	
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
Management	
Operating mode	Nebula Cloud managed/controller-managed/standalone
ZON Utility	• Discovery of Zyxel switches, APs and gateways • Centralized and batch configurations 　▪ IP configuration　　▪ Web GUI access 　▪ IP renew　　　　　　▪ Firmware upgrade 　▪ Device reboot　　　▪ Password configuration 　▪ Device locating
Web UI/CLI	Yes
SNMP	Yes

Physical Specifications		
Item	Dimensions (WxDxH)(mm/in.)	250 x 160 x 47/9.84 x 6.30 x 1.85
	Weight (g/lb.)	815/1.80
Packing	Dimensions (WxDxH)(mm/in.)	279.5 x 180.5 x 66/11.00 x 7.11 x 2.60
	Weight (g/lb.)	1040/2.29
Included accessories		• Mount plate • Mounting screws
MTBF (hr)		691,722

Physical Interfaces		
Ethernet port		2 x 1/2.5GbE LAN
Power		• PoE (802.3at): power draw 21.5W • DC input: USB PD 15 VDC 2A (Type C)
PoE modes	IEEE 802.3af	No wireless
	IEEE 802.3at	Unrestricted
	IEEE 802.3bt	Unrestricted

Environmental Specifications		
Operating	Temperature	0°C to 50°C/32°F to 122°F
	Humidity	10% to 95% (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

*2: WDS, ZyMesh, Smart Mesh and Industry's Open Mesh, Easy Mesh are different mesh systems that do not work with one another.

Recommended Accessories

Mounting Accessory

Model	ACCESSORY-ZZ0105F
Product photo	
Description	BAR ceiling clips for ceiling mount Zyxel AP (5 sets)

PoE Injector

Product	PoE12-30W	PoE12-60W	PoE12-90W
	2.5G PoE+ Injector	5G PoE++ Injector	10G PoE++ Injector
Specifications	• Support speed: 100M/1G/2.5G • 2.5G data/PoE+ ports • 30W power budget • Complies with IEEE 802.3af PoE, 802.3at PoE+ standards • Easy plug-and-play desktop or wall-mounted installation	• Support speed: 100M/1G/2.5G/5G/10G* • 10G* data/PoE++ ports • 60W power budget • Complies with IEEE 802.3af PoE, 802.3at PoE+, 802.3bt PoE++ 60W standards • Easy plug-and-play desktop or wall-mounted installation	• Support speed: 100M/1G/2.5G/5G/10G • 10G data/PoE++ ports • 90W power budget • Complies with IEEE 802.3af PoE, 802.3at PoE+, 802.3bt PoE++ 90W standards • Easy plug-and-play desktop or wall-mounted installation
Dimensions (WxDxH)(mm/in.)	140 x 45.5 x 30/ 5.51 x 1.79 x 1.18	140 x 65 x 38.5/ 5.51 x 2.56 x 1.52	196.25 x 80 x 39.8/ 7.73 x 3.15 x 1.57

* PoE12-60W supports 10G speeds with deployments using Cat 6a cable or higher, up to a maximum length of 30 meters.

Datasheet WBE630S