



# SP250-S5

802.11ax, 2x2, Dual-Band  
Point to Point Outdoor Access Point

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## Product Specification





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## Description

Z-COM SP250-S5 is a professional directional Wi-Fi 6 outdoor access point for rural, power plant, solar power plant, ports, and long-distance clients etc.

SP250-S5 , which fully complies with IEEE 802.11ax, including OFDMA Modulation, MU-MIMO, and BSS Color Spatial Reuse, with 11dBi internal high-gain antennas for PtP/PtMP deployment allows simultaneous transmission of up to 1.774Gbps. Equipped with a high-performance Qualcomm Chipset, Z-COM SP250-S5 features the latest in rugged weatherproofing and Wi-Fi 6 technology with guaranteed performance and reliability in the harshest environments.

## Feature

- Dual-band Wi-Fi 6 (802.11ax), backward compatible with Wi-Fi 5 (802. 11ac)
- Maximum throughput up to 1,200 Mbps in 5GHz and 574 Mbps in 2.4GHz
- With internal 11dBi high-gain antenna
- IP67-Rated weatherproof & dustproof enclosure withstands harsh environments
- Target wake time to reduce the amount of time of a client/ IoT device at power save mode to be awoken
- Uplink and downlink of MU-MIMO improve transmission between AP and client devices
- with 2 x 2.5 GbE ports which are 2.5 times faster than standard Ethernet (1GbE) enhance network performance



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## Overview

### Network Performance

#### Ultra-Fast Wi-Fi 6 Data Rate

Simultaneous 574 Mbps on 2.4 GHz, 1200Mbps on 5 GHz and total up to 1774 Mbps as Wi-Fi 6 speeds.

#### Integrated Directional Antenna

Z-COM SP250-S5 with the 11dBi PtP/PtMP antenna improves transmission for longer distance.

#### Flexible Power Options with 2.5Gbps PoE+ Ethernet

With 2 x 2.5Gbps ports, SP250-S5 can increase network capacity, demanding more than 1 gigabyte speed and supports Power over Ethernet (PoE) standards for flexible deployment.

#### Multiple Applications

SP250-S5 allows to perform multiple functions, ideal for various scenarios like warehouses, shopping centers, airports and other high-density outdoor environments.

### Security and Installation

#### Hardened-grade for Outdoors

Z-COM SP250-S5 is designed for extreme temperatures and environments with IP67 waterproof and dustproof that can withstand harsh environments and various weather conditions.

#### Easy and Flexible Installation

SP250-S5 provides the necessary parts for installation and features Plug-and-play and configuration free for pole mount installation.

#### Advanced Setting with FAP/TAP

SP250-S5 comes with pre-configuration default settings with TAP mode. Users are able to select APs tunnel by advanced settings for centrally managed traffic forwarding and segmentation, data encryption, and policy enforcement to optimize network performance, roaming and security.



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### Addition Software Feature

#### Fast Roaming\*

SP250-S5 provides fast roaming IEEE 802.11r/802.11k for reliable data and seamless switching to the access point with optimal signal when moving between APs.

#### Remote VPN Deployment\*

With the VPN tunnel you can run both a SSL/IPSec VPN tunnel and an ordinary internet connection – simultaneously.

#### Dynamic Channel Allocation\*

Dynamic channel allocation eliminates the time consuming and error-prone task of managing complex and static VLANs by dynamically assigning policies and keeping traffic secure and separated.

#### Optimized RF Management\*

Airtime Fairness, Load Balance, and Band Steering Technologies guarantee optimal RF performance for wireless applications.

#### Optional Centralized Management

SP250-S5 can be configured by ZCOM WLC (wireless LAN controller) which contains the centralized management platform (zMEC) to remote monitor, implement trouble shooting and optimize performance easily.

It can also optimize wireless transmission quality and security by zMEC edge computing platform. Moreover, the PaaS provides a flexible cloud platform for running, developing and managing AIoT applications.

### Technical Benefits

#### Advantages of OFDMA

OFDMA is ideal for low bandwidth applications and results in more efficient channel use, reduced latency, and increased efficiency to clients sharing a channel and not competing for airtime and bandwidth.

#### Uplink and downlink of MU-MIMO

SP250-S5 with MU-MIMO serves multiple devices simultaneously that enhances the capacity of connected devices for both uplink and downlink data transmission.

#### Reduced Interference and Waiting Time

SP250-S5 features BBS Coloring which maximizes network performance by working even within heavily congested, co-channel interference environments.

#### Transmit Beamforming

SP250-S5 with beamforming design (TxBF) is able to improve the signal strength and achieve higher range to a specific receiving client for RF reliability.

Note: \*The function activates with Z-COM wireless controller or zMEC.



## Specification

Wi-Fi		
Wireless Standards	IEEE 802.11 a/b/g/n/ac/ax	
Physical Data Rates Supported Rates	802.11axa: 4 to 1200 Mbps 802.11axg: 4 to 574 Mbps 802.11ac: 6.5 to 886 Mbps 802.11n: 6.5 to 300 Mbps 802.11a/g: 6 to 54 Mbps 802.11b: 1 to 11 Mbps	
Bandwidth Channelization	2.4GHz: 20/40 MHz	5GHz: 20/40/80 MHz
MIMO	MU-MIMO	
Radio Chains and Streams	2.4GHz : 2x2:2 5GHz : 2x2:2	
Frequency Bands and Operating Channels	Taiwan	US
	2.412 – 2.462 GHz; 11 channels 5.180 – 5.320 GHz; 8 channels 5.500 – 5.720 GHz ; 12 channels 5.745 – 5.825 GHz; 5 channels	2.412 – 2.462 GHz; 11 channels 5.180 – 5.320 GHz; 8 channels 5.500 – 5.720 GHz ; 12 channels 5.745 – 5.825 GHz; 5 channels
	EU	China
	2.412 – 2.472 GHz; 13 channels 5.180 – 5.320 GHz; 8 channels 5.500 – 5.700 GHz ; 11 channels	2.412 – 2.472 GHz; 13 channels 5.180 – 5.320 GHz; 8 channels 5.745 – 5.825 GHz; 5 channels
	Japan	India
	2.412 – 2.472 GHz; 13 channels 5.180 – 5.320 GHz; 8 channels 5.500 – 5.720 GHz; 12 channels	2.412 – 2.472 GHz; 13 channels 5.180 – 5.320 GHz; 8 channels 5.500 – 5.720 GHz ; 12 channels 5.745 – 5.865 GHz; 7 channels
	*Operating Channel depends on configured regulatory domain.	

RF		
Antenna Type	Internal	
Antenna Gain (max)	2.4GHz : 5dBi	5GHz: 11dBi
EIRP	2.4GHz: 31dBm	5GHz: 37dBm
Frequency Bands	ISM (2.4-2.484GHz) U-NII-1 (5.15-5.25GHz) U-NII-2A (5.25-5.35GHz) U-NII-2C (5.47-5.725GHz) U-NII-3 (5.725-5.85GHz)	



PERFORMANCE AND CAPACITY	
Peak PHY Rates	2.4 GHz: 574 Mbps 5 GHz: 1200 Mbps
Client Capacity	1024

PERFORMANCE TABLE				
	2.4GHZ TX TARGET POWER (PER CHAIN)		5GHZ TX TARGET POWER (PER CHAIN)	
MU HE40	MCS0	23dBm+/-2dBm	MCS0	23dBm+/-2dBm
	MCS11	16dBm+/-2dBm	MCS11	15dBm+/-2dBm
MU VHT40	MCS9	20dBm+/-2dBm	MCS9	17dBm+/-2dBm
	2.4GHZ RECEIVE SENSITIVITY		5GHZ RECEIVE SENSITIVITY	
HE20	MCS0	<-82dBm	MCS0	<-82dBm
	MCS11	<-52dBm	MCS11	<-52dBm
HE40	MCS0	<-79dBm	MCS0	<-79dBm
	MCS11	<-49dBm	MCS11	<-49dBm
HE80			MCS0	<-76dBm
			MCS11	<-46dBm

INTERFACE		
Ethernet	1x 10/100/1000M/2.5Gbps WAN Port 1x 10/100/1000M/2.5Gbps LAN Port	
Addition	1x Reset Button 1x Grounding Terminal	
Power	Power Supply	Consumption
	WAN Port : PoE+ Input (802.3at) LAN Port : PoE Output (802.3af)	≤ 25W
Bluetooth	Version	Frequency
	5.0	2400 ~ 2480MHz
Environmental	Storage	Operating
	Temperature: -40 ~ 70 °C Humidity: 5 ~ 95%	Temperature: -40 ~ 65 °C Humidity: 5 ~ 95% (non-condensing)



STANDARDS	
Compliance Standards	<p>IEC/EN 62368-1 EN55032 &amp; EN55024 WEEE &amp; RoHS <b>IEEE standards:</b> IEEE 802.11a/b/g/n/ac/ax IEEE 802.11d, e, h, i, j, k, r, u, v time stamp, w, and z standards</p> <p><b>Multimedia:</b> Wi-Fi multimedia (WMM)</p> <p><b>Security:</b> Open System 802.1x WPA-PSK/WPA-Enterprise WPA3-PSK</p> <p><b>Extensible Authentication Protocol (EAP) types:</b> EAP-Transport Layer Security (TLS) EAP-Tunneled TLS (TTLS) Protected EAP (PEAP) EAP-Subscriber Identity Module (SIM)</p> <p>*Above partial functions should be configured by Z-COM Wireless LAN Controllers (WLC)</p>

MECHANICAL	
Dimensions	296 (L) × 92 (W) × 283 (H) mm
Weight	1.87 KG
Mounting Method	Pole
IP rating	IP67
Anti-static Grade	IEC61000-4-2(Criteria B) Air: ±8kV Contact:±4kV
Green	RoHS compliant
LED Definition	<ul style="list-style-type: none"><li>• PWR : RED Off: Power / system off On: Power / system on</li><li>• WLAN : RED Off: 5G and 2G WLAN interface disable On: 5G or 2G WLAN interface enable Blinking: Sending / receiving data</li><li>• WAN : RED Off: No Ethernet connection detected On: Ethernet connection detected Blinking: Sending / receiving data</li></ul>
Supported WLC or container-base	- WS5G2 / WS7G2 /WS10G2 / WS200G2 / WS500G2 / WS1000G2 - zMEC
Warranty	1 year

