Sundray S900 plus Outdoor Access Point

Product Overview

SUNDRAY S900 plus is an outdoor high-speed wireless access point that supports **802.11a/b/g/n/ac**. S900 plus adopts 3x3 MIMO technology and supports dual-band concurrence of 802.11ac/a/n and 802.11b/g/n to provide high transmission rate up to **1750 Mbps**. S900 plus uses Gigabit port for uplink to ensure high-speed wireless transmission, also support SFP port for fiber connection, support PoE for remote power supply to simplify network deployment.

The shell of S900 plus is of the **IP 67** protection level and boasts waterproof, damp proof, dustproof, fireproof, and sun protection features. The shell can protect S900 plus against severe weather and environments（**-40℃-70℃**）. This ensures that S900 plus is applicable to both damp and cold areas. S900 plus also supports the point-to-point and point-to-multipoint relay bridge function, improving the feasibility of outdoor networking. S900 plus works with SUNDRAY controllers to provide unprecedented quick access experience and secure service access for users.
S900 PLUS built in with a directional antenna, and provides 6*N-type external antenna interfaces, which can connect to omnidirectional antenna or directional antenna can be selected based on the actual environment. It applies to outdoor environments such as scenic spots, schools and parks, squares, etc.

SUNDRAY S900 plus

Product Features

High adaptability

- **High protection level to cope with severe environments**

  The shell of S900 plus is of the IP 67 protection level and boasts waterproof, damp proof, dustproof, fireproof, and sun protection features. The shell can protect S900 PLUS against severe weather and environments.

- **Professional lightning protection design**

  AP S900 plus has building with the professional lightning protection design, adopting the antenna feeder lightning protection technology to protect S900 plus against lightning strikes. Lightning protection measures are also taken for the Ethernet port to protect the Switch port from lightning strikes.

- **Wide operating temperature range**

  S900 plus can operate properly at a temperature ranging from -40℃ to 70℃ without compromising the stability and service life. It applies to severe environments in both cold, hot and damp areas.

Flexible network deployment

- **Flexible external antennas Option**

  The maximum output power of S900 plus can reach 500 mW. It is specifically designed for wide wireless coverage outdoors. It can meet wireless coverage requirements in a wide range of outdoor scenarios by deploying omnidirectional or directional antenna. It applies to outdoor environments such as scenic spots, schools and parks, etc.

- **WDS wireless relay/bridge**

  S900 plus supports WDS, wireless relay bridges, point-to-point, and point-to-multipoint to resolve inconvenience or difficult deployment problems. The WDS function is used to relay and amplify signals for the purpose of extending the wireless coverage scope. The Ethernet port of a wireless relay AP can be connected to a wired switch to extend both wired and wireless LAN coverage scope.

- **PoE remote power supply**

  S900 PLUS adopts the PoE remote power supply design. A network cable is connected for transmitting data and supplying power to the AP. No power socket needs to be deployed. This shortens the construction time, reduces the construction costs, and avoids strong current threats. In other words, the AP is protected against damage caused by burst over-high voltage or unstable voltage.

- **Virtual AP technology**

  A maximum of 32 ESSIDs can be provided by using the virtual AP technology. Different SSIDs use different authentication modes and have different network access permission. The SSIDs are isolated from each other. L2 isolation can be implemented for terminals that use the same SSID on a subnet or VLAN to ensure user data security.

- **SSID**

  An SSID with a maximum of 32 characters can be specified. An SSID can also contain both Chinese and English characters. Individualized SSIDs are available for scenic spots, schools or parks to improve discrimination.

Top-speed wireless network access

- **Dual-frequency high-speed access**

  SUNDRAY S900 PLUS complies with the 802.11a/b/g/n/ac standard and adopts the 2x2 MIMO technology. 2.4 GHz RF provides up to 4500Mbps, and 5 GHz RF provide a transmission rate high up to 1300Mbps, thus the system transmission rate can reach 1750 Mbps, thereby providing high-performance wireless access services in terms of coverage scope, access density and operation stability.

- **Gigabit uplink**

  Two 10/100/1000Base-T Ethernet port is used as the uplink port, and also one SFP port is used for fiber connection, ensuring high-speed wireless transmission.

- **QoS guarantee**

  SUNDRAY S900 plus supports different QoS levels. It supports air interface resource management based on applications, SSIDs or STAs to ensure that air interfaces are appropriately allocated and that the data of important SSIDs and applications is transmitted in preference. Transmission priorities can be defined for different service data through 802.11e/WMM. This ensures smooth wireless access.

- **Seamless roaming for L2 and L3**

  SUNDRAY S900 plus works with SUNDRAY wireless controller to implement seamless roaming for L2 and L3. When a wireless user roams, the IP address and authentication status remain unchanged. The terminal viscosity prevention function is provided to intelligently guide an STA to the optimal AP, increasing the roaming speed.

All-round security protection

- **Multiple easy-to-use and secure authentication modes**

  Multiple flexible, easy-to-use and secure user authentication modes are available. 802.1x, portal, SMS, WeChat, Facebook, app and QR code authentication modes are provided with the support of SUNDRAY wireless controller to meet network deployment requirements in environments including scenic spots, schools and parks, etc.

- **All-round wireless security protection**

  With the support of SUNDRAY wireless controllers, S900 plus provides a wide range of wireless security protection functions including WIDS/WIPS, illegitimate AP detection, ARP spoofing prevention, and DoS attack prevention, constructing a truly secure and reliable wireless network for users.

Marketing

- **Access analysis**

  Build-in access analysis system, support report the device appear time, MAC address, and report the data differently in the first access and repeat access, passerby and total number coming and not coming in. Also will show the duration of stay. Based on the statistics, will have a better understanding of the clients in the network and offer information for the operators to make decision.

- **Marketing based on user behavior**

  Based on the client's behavior to make the policy of when to push the message. The policy support based on the application the client is using, and based on location, schedule, first access repeat access. The message support banner, SMS, wechat message and webpage.

- **APP and file cache**

  The controller and the USB drive on the AP can cache the application for ios and android devices. It will help to accelerate the network. Also it will help to accelerate the app authentication.

Technical specifications

Hardware specifications

Product Specifications of SUNDRAY S900 PLUS	
Hardware specifications	
Item	Description
Model	S900 plus
Dimensions	242mm*242mm*68mm
Ethernet port	1*10/100/1000Mbps ETH0/PoE IN（RJ45） 1*SFP 1*10/100/1000Mbps ETH1/PoE OUT （RJ45）
PoE	802.3at
Transmit power	≤ 27 dBm
Power adjustment granularity	1 dbm
Power range	3 dBm to the value specified by national regulations
Power consumption	< 25 W
Antenna	Build-in directional antenna, support external antenna
Antenna interface	3*2.4 GHz N-type connectors and 3*5 GHz N-type connectors
Operating/storage temperature	-40 ℃ to +70 ℃
Operating/storage humidity	0%-100% (non-condensing)
Protection level	IP 67
MTBF	> 250000 H

Software specifications

Software specifications		
Item		Description
Model		S900 plus
RF	Streams	3
	Maximum transmission speed of a single frequency	2.4 G: 450 Mbps 5 G: 1300 Mbps
	Operating frequency band	802.11ac/n/a : 5.725GHz-5.850GHz ; 5.15~5.35GHz
		802.11b/g/n : 2.4GHz-2.483GHz
	Modulation technology	OFDM: BPSK@6/9 Mbps, QPSK@12/18 Mbps, 16-QAM@24 Mbps, 64-QAM@48/54 Mbps
		DSSS: DBPSK@1 Mbps, DQPSK@2 Mbps, CCK@5.5/11 Mbps
		MIMO-OFDM: MCS 0-15 MIMO-OFDM （11ac）: MCS 0-9
	Channel rate	802.11b: 1, 2, 5.5, 11
		802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
		802.11n: 6.5 to 300 (MCS0 to MCS15)
		802.11n high throughput support: MCS 0-7 HT 20/40 802.11ac： MCS 0-9； 20/40/80

Software specifications		
	Channel quantity	802.11a、802.11n、802.11ac（compatible with 802.11a）：13 channels
		802.11b, 802.11g, 802.11n (compatible with 802.11b/g mode): 13 channels
	Manual and automatic channel adjustment	Supported
	Automatic power adjustment	Supported
	Manual power adjustment	The AP supports manual power adjustment with an adjustment granularity of 1 dBm. The power scope is from 1 dBm to the value specified by national regulations.
	Timed turning on or off of RF	RF can be turned on or off based on the specified time period.
	Turn off MIMO	Supported. An RF interface can be selected for single output.
WLAN function	Maximum number of connected users	256 (maximum number of connected users of a single RF: 128)
	Connected user quantity restriction	Supported
	Virtual AP	32
	Chinese SSID	Supported
	SSID hiding	Supported
	Wireless relay/bridge	Point-to-point and point-to-multipoint supported
	User-, traffic-, and frequency band-based intelligent load balancing	Supported
	Bandwidth restriction	STA, SSID, or AP-based rate limiting is supported.
	STA function	Abnormal STA disconnection detection, STA aging detection, and STA statistic and status query are supported.
	Link integrity detection	Supported
Security authentication	Authentication mode	Pre-shared key authentication, portal authentication, 802.1x authentication, CA certificate authentication, WeChat authentication, Facebook, SMS authentication, QR code authentication, temporary visitor authentication, WAPI personal and enterprise
	Pre-shared key	WPA-PSK, WPA2-PSK, WPA-PSK/WPA2-PSK hybrid authentication
	Portal authentication	Intelligent terminal type identification is supported. A page matching the terminal size is pushed to terminals. The page logo and displayed information can be customized. In addition, the verification, authentication interval, and reconnection authentication time thresholds can be set.
	802.1x authentication	802.1x one-key configuration and 802.1x perception-free authentication are supported. You only need to download the one-key automatic configuration tool at initial access and finish wireless network configuration quickly. This simplified network deployment significantly.
	CA certificate authentication	High-security certificate authentication can be implemented by using the CA certificate issuance center embedded into the controller, without the need to constructing a certificate server. Authentication by using a certificate imported from an external certificate server is also supported.
	WeChat authentication	After access the wireless network, a user can scan the QR code of the

Software specifications		
		shopping mall or enterprise and follow the public account to access the Internet. The one-key follow function can be easily deployed without any code development. In WeChat authentication, a user can access the network by clicking a text message network access link or clicking the menu bar to view advertisements, or access the network via WeChat authorization.
	SMS authentication	SMS authentication takes effect forever. That is, a user can directly access the network without authentication after being authenticated via SMS at initial access. This reduces the SMS costs and improves user experience.
	QR code authentication	After a visitor terminal accesses the wireless network, the terminal will automatically display a QR page. The approver scans the QR code of the visitor terminal via a cell phone and then the visitor can access the Internet. The visitor information is recorded in three dimensions: approver, remarks, and MAC address of the visitor terminal. This ensures user traceability and network security.
	Temporary visitor authentication	A temporary user information management system is embedded. A temporary user can log in within the validity period and cannot after the validity period elapses. A secondary permission system for temporary account management is embedded and temporary accounts can be created and managed in this system. The QR code of a temporary visitor can be printed and the temporary visitor can scan the QR code to access the network. Temporary visitors can be grouped.
	Authentication exemption	Only a portal advertisement page is displayed. A user needs to click the login button to access the network without entering any account password or performing other authentication.
	Data encryption	Data encryption via TKIP and AES (CCMP) is supported.
	Blacklist and whitelist	Static whitelist and blacklist are supported.
	User isolation	SSID-based isolation, automatic VLAN grouping, and user isolation of specified VLANs are supported.
	WIPS	Supported
	Illegitimate AP detection and workaround	Supported
	ACL	Account-, access location-, access terminal type- and SSID-based ACL policy assignment and management are supported.
	Radius protocol	Supported
Wireless optimization	Application layer acceleration	Acceleration can be performed for the application layer. The acceleration service application can help increase the transmission speed by 1.5 to 4 times.
	E-schoolbag scenario optimization	The transmission speed of multicast packets is increased, improving the effects of the E-schoolbag scenario in an all-round way.
	Intelligent broadcast acceleration	The transmission speed of broadcast packets is automatically increased based on the actual environment, thereby improving the transmission

Software specifications		
		efficiency of broadcast packets.
	Terminal dragging prevention	This function aims to prevent the decrease of the entire network speed caused by low-speed terminals based on the time fairness algorithm.
	Terminal viscosity prevention	This function involves detecting STAs connected to APs and intelligently guiding the STAs to the optimal AP.
	Prohibited access of low-speed terminals	The speed of access terminals is limited. Weak-signal terminals with a speed lower than the specified value are prohibited from accessing the network. This improves the entire network speed.
	High-density access scenario optimization	The response to broadcast probe requests is controlled for the purpose of optimizing high-density access scenarios.
	ARP-unicast conversion	ARP broadcast packets are converted into unicast packets. This reduces the number of broadcast packets, thereby improving the transmission speed.
	Prohibit DHCP requests destined for wireless terminals	After this function is enabled, DHCP broadcast requests will be forwarded only to the wired network, instead of other wireless network. This improves the network throughput and performance of the wireless network.
Hotspot analysis	AP-based access user quantity statistics	The number of connected users and change trends of each AP in the recent one day, one week, and one month can be measured.
	AP-based network access traffic statistics	The network access traffic and change trends of each AP in the recent one day, one week, and one month can be measured.
	AP-based signal quality analysis	Statistic analysis for the signal usage, noise, retransmit rate, BER, and BER change trends of each AP is supported.
AP access mode	AC discovery mechanism	L2 broadcast automatic discovery
		L3 discovery based on configured static IP addresses
		DHCP Option43 discovery
		DNS domain name discovery
	Cross-WAN and cross-NAT remote AP deployment	Supported
	webAgent	Controller IP addresses can be dynamically discovered by using the webAgent technology. This avoids AP disconnection caused by unfixed controller IP addresses.
	Tunnel encryption	Supported
Wireless relay/bridge	Relay mode	Point-to-point and point-to-multipoint supported
	Relay frequency band	2.4/5.8 GHz
	Disable wireless network on relay frequency band	Supported
	Wireless backhaul service	Supported

Sundray Technologies Company Ltd.

Add: Building A1, i Park, No.1001 Xueyuan Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China Post | Post Code: 518055

Service hot line：+86-755-86725911

Web: www.sangfor.com; www.sundray.com E-mail: liaohaibo@sundray.com

Document Version: 20150106-V1.0