



# RG-AP320-I

## Wireless Access Point Datasheet

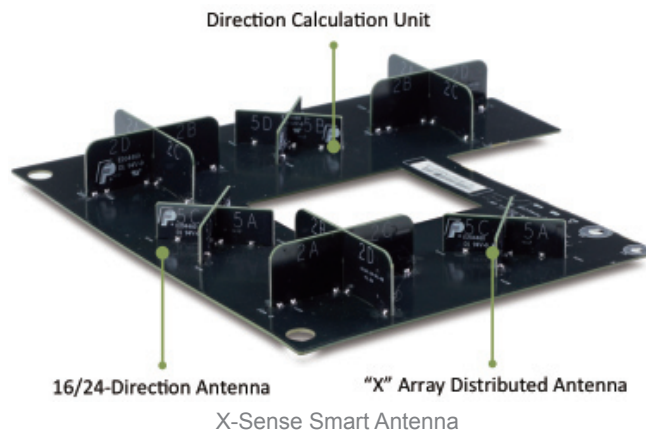
Ruijie Networks Co.,Ltd

For further information, please visit our website <http://www.ruijienetworks.com>

## Product Overview

Ruijie RG-AP320-I, equipped with the Ruijie's Patent X-Sense Smart Antenna, is a wireless access point (AP) designed for high-speed wireless LAN. The X-Sense Smart Antenna greatly improves the AP coverage performance and ensures an optimal access experience for smart device. Each AP delivers data rates of up to 600 Mbps, which meets all kinds of wireless service requirements. The AP also features security, radio frequency (RF) control, mobile access, Quality of Service (QoS), and seamless roaming, and can be managed by RG-WS series wireless access controllers (ACs) to implement wireless data forwarding, security, and access control.

The RG-AP320-I AP adopts dual-band, dual-radio design and works well in both 802.11a/b/g/n and 802.11b/g/n modes. The wall-mountable RG-AP320-I AP allows easy and safe installation on wall or ceiling and offers local power and Power over Ethernet (PoE) options. The RG-AP320-I AP is an ideal match for large-sized campuses, offices, hospitals, and carriers hotspots.

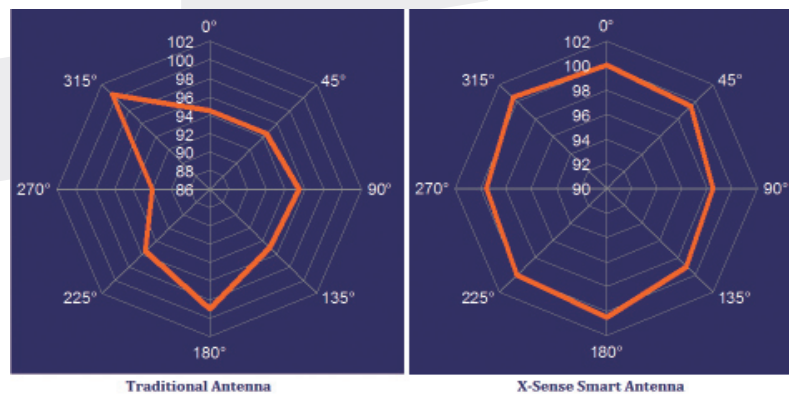


## Product Features

### X-Sense Smart Antenna

- Full coverage based on 65,536 signal paths

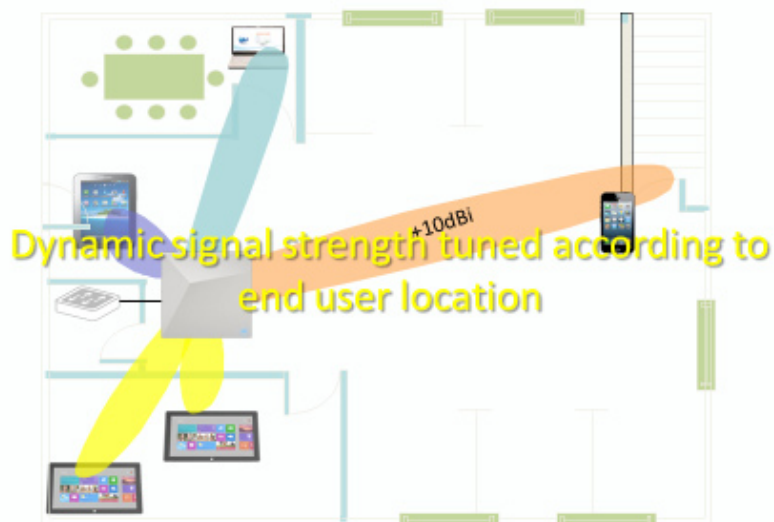
In the X-Sense Smart Antenna matrix architecture, the RG-AP320-I AP with 16 built-in array antennas dynamically selects up to 65,536 different antenna combinations and effectively solves the weakness of coverage dead zones of traditional antennas. Regardless of the location of smart device, the X-Sense Smart Antenna customizes and aligns the best signal path to achieve full coverage.



Comparison of Traditional Antenna and X-Sense Smart Antenna Coverage

- **Automatic adjustment for best signals**

Regardless of the high mobility of smart device, the AP always provides the best signal path with the revolutionary change brought by Ruijie X-Sense Smart Antenna technology. No manual adjustment required, the X-Sense Smart Antenna can automatically perform up to 300 signal path switchovers within 1 ms. Even if the smart device is moving fast, the X-Sense Smart Antenna can always trace the smart device and offer the best signal strength.



User Signal Tracking – Dynamic Signal Strength Tuned According to End User Location

- **Signal strength multiplied by 3 times with the same power supply**

The X-Sense Smart Antenna accurately calculates the location of a smart device and improves the signal strength accordingly. For ordinary APs, the X-Sense Smart Antenna can multiply the signal strength by up to 3 times, enabling the best wireless signal coverage. Increased signal strength does not always come with higher radiation level and Ruijie X-Sense Smart Antenna is an exception. The improved signal strength is used to compensate for the loss during transmission and through wall penetration. The transmit power of APs completely complies with the safety standards.

- **Smart device access optimization design, more suitable for mobile phone and tablet PC**

The X-Sense Smart Antenna swiftly and accurately identifies any smart device as it gets connected to the wireless network. For low-power mobile phones and tablet PCs, the X-Sense Smart Antenna improves receiver sensitivity and performs retransmissions through dynamic signal compensation technology to ensure optimal access performance for all kinds of smart devices.

- **Interference reduction by 30% for easier deployment**

Interference is the biggest challenge to any wireless network deployment. The interference problem will become obvious when a large number of APs are deployed in a small space. The X-Sense Smart Antenna automatically adjusts the wireless signal output direction according to the user location. When disturbed, the X-Sense Smart Antenna selects a better path to avoid interference. Test results show that Ruijie's X-Sense Smart Antenna technology can effectively reduce interference by more than 30%.

## High-Speed Wireless Performance with Sustainability

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### ■ High performance for wireless service requirements

The RG-AP320-I AP adopts dual-band, dual-radio design and delivers an access rate up to 600 Mbps. The AP ensures ease of network access and provides wide data transmission channels for high-bandwidth wireless services.

### ■ Go green, save energy and protect environment

The RG-AP320-I AP has passed the detection test using the RF radiation monitor NBM550 of German Narda Company. The result shows that the radiation intensity of RG-AP320-I is about  $0.2\mu\text{W}/\text{cm}^2$ , far lower than the radiation intensity of regular cellphones which is  $20\mu\text{W}/\text{cm}^2$ , putting user's mind at ease.

The RG-AP320-I AP adopts advanced power-saving technologies including dynamic MIMO power-saving technology and wireless signaltiming switching technology. Based on the high-performance power supply design, the AP provides high-speed wireless access and saves 25% power.

### ■ Industry-leading local forwarding technology

Employing an industry-leading local forwarding technology, the RG-AP320-I AP eliminates the traffic bottleneck of wireless Access Controllers (ACs). The local forwarding technology can forward large-scale, delay-sensitive, and real-time transmission data upstream switches which will greatly alleviate the traffic pressure on the wireless LAN controllers and fulfill the high traffic transmission requirements of 802.11n network.

### ■ Abundant QoS policies

The RG-AP320-I AP supports an extensive array of QoS policies. For example, it provides bandwidth limitations in WLAN/AP/STA modes and Wi-Fi multimedia (WMM) that defines different priorities for different service data. The RG-AP320-I AP realizes timely and quantitative transmission of audio and video and guarantees smooth operation of multi-media applications.

The RG-AP320-I AP supports the multicast-to-unicast conversion technology and resolves the video interruption problem due to packet loss or long delay in wireless Video on Demand (VoD) system. The AP highly enhances user experience with multicast video over wireless networks.

## Smart Wireless Experience

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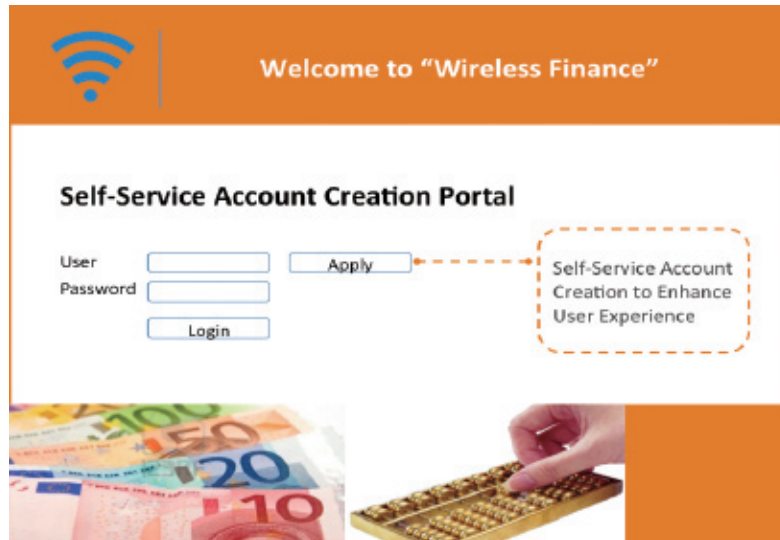
### ■ X-speed wireless experience

Despite of the interference from other overlapping access points, the RG-AP320-I AP effectively shortens the waiting time between competing downlink users to send packets. Ruijie network users enjoy high-speed wireless experience despite of the interference level in the background environment.

In addition, the RG-AP320-I AP solves the problems such as high latency and low speed of wireless network which are caused by deployment of an old wireless LAN card far away from the AP. To address the problems, all users are assigned equal time to transmit packets on wireless link, ensuring a fair high-speed wireless network for every user and improves the overall throughput of the AP at the same time.

### ■ Intelligent identification of smart device

Deployed together with Ruijie Wireless ACs, the RG-AP320-I AP intelligently identifies the smart device type according to its features and adaptively presents a portal authentication page in the corresponding size and page layout. The intelligent identification of smart device eliminates the trouble of screen size adjustment and offers faster wireless experience by saving about 10 seconds. This technology supports all mainstream operating systems including Apple iOS, Android, and Windows.



Authentication Page Presented After Identification of Smart Device

- **Remote Intelligent Perception Technology (RIPT)**

In the traditional network architecture where fit APs are centrally managed by a wireless AC, packets received by the AP must be transmitted to the AC before being forwarded. Therefore, when the wireless AC becomes faulty, the APs fail to work properly and it results in the entire wireless network to break down. Ruijie's latest RIPT enables the RG-AP320-I AP to implement intelligent link perception. Once the faulty wireless AC is detected, the APs swiftly switch to the intelligent mode to continue data forwarding, ensuring the high availability of the wireless network and keeping wireless users always online.

- **Intelligent load balancing**

On a high-density wireless LAN, the RG-AP320-I AP pairs with Ruijie Wireless ACs to intelligently distribute users among different APs according to the number of users and data traffic in real time. This feature balances the load pressure on each AP and improves the average bandwidth and QoS, offering higher network availability.

- **Seamless roaming experience**

The RG-AP320-I AP works perfectly with the RG-WS wireless ACs, allowing wireless users to roam seamlessly on Layer 2 and Layer 3 networks without data interruption.

- **Wireless IPv6 access**

The RG-AP320-I AP supports all the IPv6 features and implements IPv6 forwarding on a wireless network. Both IPv4 and IPv6 users can connect to the ACs over tunnels, enabling IPv6 applications to be borne on the wireless network.

## Comprehensive Security Protection

- **User access control**

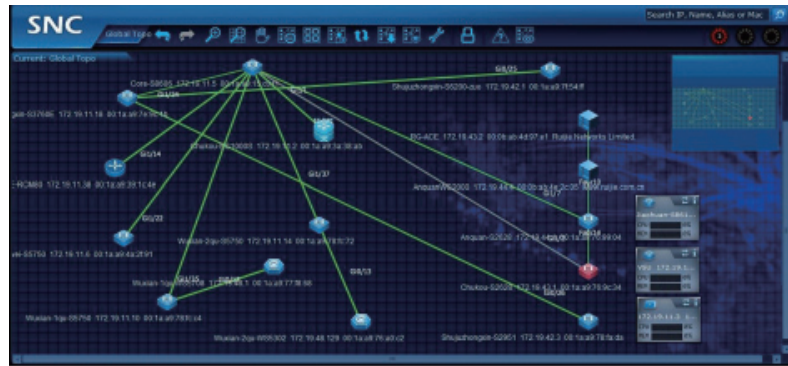
The RG-AP320-I AP supports multiple authentication methods, such as Web, 802.1x, MAC address, and local authentication for customers' choice. The AP also supports Ruijie's advanced Security Management Platform (SMP) BYOD Solution which complies with a standard access control system. The system has a set of control policies in terms of user access, authorization, host compliance check, network behavior monitoring, and network attack defense, etc. All these control functions ensure that users are authenticated before access and enjoy the network services securely.

■ Flexible virtual AP technology

With the virtual AP technology, the RG-AP320-I AP provides up to 32 Extended Service Set IDs (ESSIDs) to support 32 802.1Q VLANs. Network administrators can separately encrypt and isolate subnets or VLANs that have the same SSID. They can also flexibly configure a separate authentication mode and encryption mechanism for each SSID.

■ Comprehensive wireless security protection

Together with Ruijie's RG-SNC network management system and RG-WS wireless ACs, the RG-AP320-I AP provides a powerful range of wireless security features, such as Wireless Intrusion Detection System (WIDS), RF Interference Location, Rogue AP Countermeasures, Anti-ARP Spoofing, and DHCP. The AP offers a truly secure and reliable wireless network.



Topology Display of Ruijie RG-SNC Network Management System

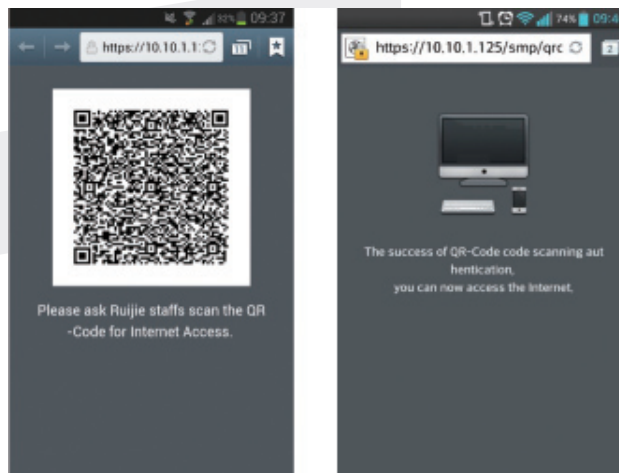
■ Flexible authentication modes

The RG-AP320-I AP supports convenient Protected Extensible Authentication Protocol (PEAP), Web Portal Authentication, SMS Authentication, and QR-Code Authentication.

If users are authenticated via PEAP, they just need to perform password authentication for once. That means they are only required to enter user credentials during their first network visit.

If users are authenticated via SMS, they need to sign in first with their mobile phone numbers and then obtain usernames and passwords from the SMS sent to their mobile phones.

QR code authentication is another wireless security highlight. After accessing a wireless network, users will obtain a QR code and need to get it scanned by any authorized staff's mobile phones to gain network access.



Advanced Guest Wireless Interfaces of the QR Code Authentication

## Flexible Device Management Mode

- Flexible switching between the fat and fit mode

The RG-AP320-I AP supports flexible switching over the fat and fit modes. In the fit mode, it realizes configuration-free installation. The perfect remote management greatly improves the efficiency of O&M maintenance

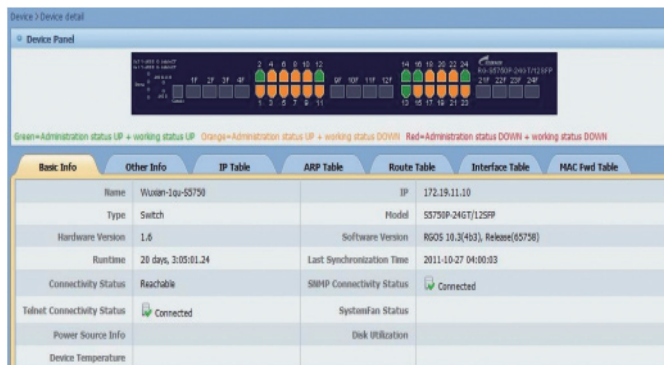
- Web-based management interface

The RG-AP320-I AP provides Web management interfaces for ACs and APs. These interfaces simplify wireless configuration and support integrated wireless network operations. Administrators can manage the APs as well as the APs' associated users, restrict user access, and control access bandwidths, thereby facilitating O&M personnel's wireless network planning, operation, and maintenance.

- Association with network management software

The RG-AP320-I AP is able to integrate with Ruijie network management software Smart Network Commander (SNC) to manage all wireless ACs and APs on a network. The management function includes:

- Configuration backu
- Device status inspection
- Wireless signal “heat map” diagram to display wireless signal distribution of APs in the actual operating environment



Ruijie RG-SNC Device Management



## Technical Parameters

Technical Parameters	RG-AP320-I
Radio	Dual
Protocol	Concurrent 802.11b/g/n and 802.11a/n
Operating Bands	2.4 GHz and 5.8 GHz
Antenna	Built in with an X-Sense smart antenna array, which is composed of 16 antennas
Spatial Streams	2
Max Throughput	300 Mbps per radio and 600 Mbps per AP
Modulation	DSSS: DBPSK@1Mbps, DQPSK@2Mbps, CCK@5.5/11Mbps OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps MIMO-OFDM: MCS 0-15
Receiver Sensitivity	11b: -96dBm(1Mbps), -91dBm(5.5Mbps), -89dBm(11Mbps) 11a/g: -91dBm(6Mbps), -85dBm(24Mbps), -80dBm(36Mbps), -74dBm(54Mbps) 11n: -88Bm@MCS0, -70dBm@MCS7, -89dBm@MCS8, -68dBm@MCS15
Transmit Power	≤ 100 mW (20 dBm, transmit power of the RF card only)
Adjustment Power	1dBm
Dimensions (W x D x H)	205×205×42mm (The height does not include the height of the antenna connector or bracket)
Weight	0.7kg
Service Port	One 10/100/1000Base-T Ethernet uplink port (supporting PoE)
Management Port	One console port
Lock	Yes
LED Indicators	One LED (red, green, blue, orange, and flashing modes, breathing flashing mode for smart device access, and silence can be disabled)
Power Supply	DC power adapter (supporting 48 VDC local power supplies) 802.3af PoE
Max Total Power	11W
Environmental	Operating temperature: -10°C to +50°C Storage temperature: -40°C to +70°C Operating humidity: 5% to 95% (non-condensing) Storage humidity: 5% to 95% (non-condensing)
Installation Mode	Ceiling/wall-mount
IP Rating	IP41
Safety Standards	GB4943 and EN/IEC 60950-1
EMC Standards	GB9254 and EN301 489
Health	EN 62311
Radio Standards	Model of approved wireless radiation devices, EN300 328, and EN301 893
Wi-Fi Alliance Certification	Yes



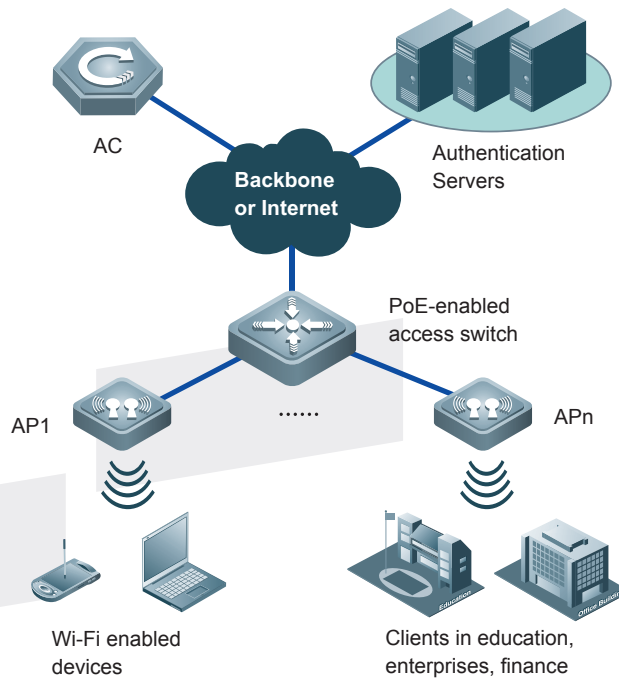
Software Functions			
WLAN	Maximum number of stations per AP	256	
	Recommended number of stations (with best user experience)	32	
	Virtual AP	A maximum of 32 SSIDs	
	SSID hiding	Yes	
	Configuring the authentication mode, encryption mechanism, and VLAN attributes for each SSID WDS (bridge mode)	Yes	
	Remote Intelligent Perception Technology (RIPT)	Yes	
	X-speed	Yes	
	Intelligent identification of smart device	Yes	
	Intelligent load balancing based on the number of users or traffic	Yes	
	STA limit	SSID-based Radio-based	
	Bandwidth limit	STA/SSID/AP-based rate limit	
	Preference 5 GHz(band select)	Yes	
	Security	PSK, Web, and 802.1x authentication	Yes
		Data encryption	WPA (TKIP), WPA2 (AES), WPA-PSK, and WEP (64 or 128 bits)
QR code authentication		Yes	
SMS authentication		Yes	
PEAP authentication		Yes	
Data frame filtering		Whitelist, static blacklist, and dynamic blacklist	
User isolation		Yes	
Rogue AP detection and countermeasure		Yes	
Dynamic ACL assignment		Yes	
RADIUS		Yes	
CPU Protection Policy (CPP)		Yes	
Network Foundation Protection Policy (NFPP)		Yes	
Routing	IPv4 address	Static and dynamic IP address	
	IPv6 CAPWAP tunnel	Yes	
	ICMPv6	Yes	
	IPv6 address	Manual or automatic	
	IPv6 tunnel	Manual or automatic	

Software Functions		
Routing	ISATAP	Yes
	Multicast	Multicast to unicast conversion
Management and Maintenance	Network management	SNMP v1/v2C/v3; Telnet, SSH, TFTP, and FTP and Web management
	Fault detection and alarm	Yes
	Statistics and logs	Yes
	Switching between the fat and fit modes	The AP working in fit mode can switch to the fat mode through the RG-WS wireless AC; The AP working in fat mode can switch to the fit mode through a local console port or Telnet.

## Typical Applications

The RG-AP320-I AP is applicable to spacious buildings densely packed with end users, such as meeting rooms, libraries, classrooms, bars, and recreation centers. Clients can deploy the devices flexibly according to their needs

Typical topology diagram for RG-AP320-I AP:



## Ordering Information

Model	Description	Remarks
RG-AP320-I	Indoor wireless access point, Dual-radio, Dual-band, with X-Sense smart antenna, supports concurrent 802.11a/n and 802.11b/g/n, 2x2 MIMO, Fat/Fit mode, GE uplink copper port, supports PoE and local power supply. (PoE and local power adapters need to be purchased separately)	Mandatory



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