Ruijie RG-AP840-I

Wireless Access Point

Datasheet

Ruijie Networks Co., Ltd.

Revision Record

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2 Product Overview

RG-AP840-I is the next-generation flagship wireless AP launched by Ruijie to support the latest 802.11ax protocol for indoor scenarios of higher education, government, primary and secondary education, finance, and commercial sector. With dual-radio technology, the AP offers up to 400Mbps access rate for 2.4G and up to 4.8Gbps access rate for 5G. The AP provides 5.2Gbps wireless access rate, eliminating the bottleneck for ultra-fast wireless performance.

With wireless network security, radio frequency control, mobile access, quality of service guarantee, seamless roaming and other important factors considered, the RG-AP840-I can be deployed with Ruijie wireless controller to achieve wireless user data forwarding, security and access control.

The RG-AP840-I supports concurrent operation in 802.11ax, 802.11ac Wave 2, 802.11ac Wave 1 and 802.11n modes. With wall mount and ceiling mount options, the AP can be securely and conveniently installed in various positions such as walls and ceilings. The RG-AP840-I supports local power supply and PoE, which can be flexibly selected according to the power supply environment of customer's site. It is especially suitable for deployment in large campuses, enterprise offices and other high-density scenarios.

3 Product Features

3.1 High-reliability 3-port Design

With the design of 3 network ports, the RG-AP840-I not only solves the problem of interface data backup, but also provides flexible networking modes for networks that require internal and external network isolation. The LAN3 port also supports external power supply for PSE and other module expansions such as IoT to enrich the application scenarios.

3.2 High-speed, Power-saving & High-reliability Wi-Fi

3.2.1 1024-QAM High-speed Access Rate

The RG-AP840-I adopts the dual-radio dual-band design and 2G+5G is recommended. With the next-generation 802.11ax for 5G, the maximum access can reach 4.8Gbps. If dual-radio is enabled concurrently, the high-speed Wi-Fi can reach 5.2Gbps, offering the true high-speed experience.

3.2.2 OFDMA High-density User Access

The RG-AP840-I supports OFDMA of 802.11ax, which divides the WLAN channel into a plurality of narrower subchannels, with each user occupying one or more subchannels. By scheduling multiple users to receive and send packets concurrently via the AP, user competition and network delay can be reduced, improving the network efficiency. In a high-density deployment and access environment, the average rate per user is increased to four times of 802.11ac.

3.2.3 BSS Color Spatial Multiplexing

The RG-AP840-I supports basic service set (BSS) color spatial multiplexing of 802.11ax to identify the BSSs of different WLANs in the network by different coloring (BSS color), and further divide them into internal and external BSS. Different packet receiving and sending thresholds can be maintained. When a packet is received, BSS coloring is used to quickly determine the packet of the external BSS. If the signal strength is smaller than the receiving threshold of the external BSS, the packet will be

ignored. The internal BSS packet will be not affected. This technology can implement channel multiplexing in a high-density scenario, greatly reducing the impact of co-channel interference in actual network deployment.

3.2.4 Energy-saving Design

The RG-AP840-I adopts advanced energy-saving features including single-antenna standby technology, dynamic MIMO energy-saving technology, enhanced transmission technology with automatic power saving and per-packet power control technology. Coupled with the high-performance power supply design, the RG-AP840-I guarantees high-speed wireless access while reducing power consumption.

3.2.5 Intelligent Recognition Feature

The RG-AP840-I supports smart terminal recognition, which can identify PCs and smart mobile terminals including iOS and Android.

3.2.6 Industry-leading Local Forwarding Technology

Employing an industry-leading local forwarding technology, the RG-AP840-I eliminates the traffic bottleneck of wireless controllers. In collaboration with the RG-WS Wireless Controller Series, users can flexibly pre-configure the data forwarding mode for RG-AP840-I. The local forwarding technology can determine whether to forward data to the wireless controller according to the SSID or user VLAN, or directly send the data to the wired network for data exchange.

The local forwarding technology can forward delay-sensitive and real-time data transmission through the wired network. It significantly alleviates the traffic pressure on the wireless controllers and better fulfills the high traffic transmission requirements of 802.11ax network.

3.2.7 Abundant QoS Policies

The RG-AP840-I 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-AP840-I realizes timely and quantitative transmission of audio and video and guarantees smooth operation of multi-media applications.

With the multicast-to-unicast conversion technology, the RG-AP840-I resolves the video lagging problem due to packet loss or long delay in the wireless Video on Demand (VoD) system. The RG-AP840-I highly enhances user experience with multicast video over wireless networks.

3.3 Comprehensive Security Protection

3.3.1 Secure User Access

The RG-AP840-I supports a wide range of authentication methods such as web, 802.1x, MAC address and local authentication. The standard network access control system has a set of control policies in terms of user access, authorization, equipment compliance check, network behavior monitoring, network attack prevention, etc. All these control features ensure that users are authenticated before accessing the network services securely.

3.3.2 Virtual AP Technology

With the virtual AP technology, the RG-AP840-I supports up to 48 ESSIDs. Network administrator can separately encrypt and isolate VLANs or subnets with the same SSID. The deployment thereby enables specified authentication mode and encryption mechanism for each SSID.

3.3.3 Comprehensive Wireless Protection

Coupled with RG-SNC and RG-WS Wireless Controllers, the RG-AP840-I offers a breadth of security features including WIDS (Wireless Intrusion Detection System), RF interference tracking, rogue AP containment, anti-ARP spoofing, DHCP protection and beyond for all-around security protection.

3.3.1 Multiple Easy-to-use Authentication Options

Deployed with Ruijie authentication system or multi-service AC, the RG-AP840-I supports convenient Protected Extensible Authentication Protocol (PEAP), 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 initial 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 method to facilitate user authentication. After accessing the wireless network, users will obtain a QR code which need to be scanned by any authorized staff to gain network access.

3.4 Flexible Device Management

3.4.1 Flexible Switching between FAT & FIT Modes

The RG-AP840-I supports flexible switching over the FAT and FIT modes according to the networking requirements of different industries. Under FIT mode, the installation can be completed with zero configuration, and the comprehensive remote management significantly improves the operation, maintenance and management efficiency of wireless network.

3.4.2 Web Management Interface

The RG-AP840-I provides a web management interface for the AC and AP. Not only can the wireless configuration be easily implemented, but the whole wireless network can also be operated via the interface. Users not only can manage APs and the connected users via the AC web interface, but can also limit the speed and user connection to the network, thereby facilitating the IT personnel to plan, operate and maintain the wireless network.

3.4.3 Network Management Software

The RG-AP840-I can be deployed with Ruijie network management software SNC, which enables management of all wireless controllers and wireless APs in the network, including device configuration backup, device status monitoring, and wireless heat map to display the wireless signal distribution of the wireless APs in the actual environment.

4 Technical Specifications

Model	RG-AP840-I
Hardware specifications	
Radio	Dual-radio dual-band（2G+5G）：2G 2×2 MIMO + 5G 4×4 MIMO
Protocol	Supports standard 802.11ax, dual-radio dual-band, concurrent 802.11ax and 802.11a/b/g/n/ac
Operating Bands	802.11b/g/n ：2.4G ~ 2.483GHz 802.11a/n/ac/ax ： 5.150～5.350GHz，5.47～5.725，5.725～5.850GHz (vary depending on different countries)
Spatial Streams	6
Max Throughput	Maximum throughput of 2.4G: 400Mbps Maximum throughput of 5G: 4.8Gbps Maximum throughput per AP: 5.2Gbps
Modulation	OFDM：BPSK@6/9Mbps，QPSK@12/18Mbps，16-QAM@24Mbps，64-QAM@48/54Mbps DSSS：DBPSK@1Mbps，DQPSK@2Mbps，and CCK@5.5/11Mbps MIMO-OFDM：BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM OFDMA
Receiver Sensitivity	11b：-96dBm（1Mbps），-93dBm（5Mbps），-89dBm（11Mbps） 11a/g：-91dBm（6Mbps），-85dBm（24Mbps），-80dBm（36Mbps），-74dBm（54Mbps） 11n：-90dBm（MCS0），-70dBm（MCS7），-89dBm（MCS8），-68dBm（MCS15） 11ac HT20：-88dBm（MCS0），-63dBm（MCS9） 11ac HT40：-85dBm（MCS0），-60dBm（MCS9） 11ac HT80：-82dBm（MCS0），-57dBm（MCS9） 11ax HT80：-82dBm（MCS0），-57dBm（MCS9），-52dBm（MCS11）

Transmit Power	≤100mw（20dBm） (vary depending on different countries)
Adjustable Power	1dBm
Dimensions (W x D x H)	255mm ×255mm x48.85mm（Height of the AP only, excluding the mount kit）
Antenna	Built-in antenna
Weight	1.30kg
Service Ports	3 10/100/1000M Ethernet port (LAN1 supports PoE+. LAN3 supports external power supply for PSE, max 3W.)
Management Port	1 console port
Reset Button	Support
Anti-theft Lock	Support
LED Indicator	1 LED indicator (Supports red, green, blue, orange and flashing mode, which indicates device access. The indicator can be switched off to silent mode.)
Power Supply	Local power supply (DC 48V/1A) （Power adapters are sold separately） PoE+（802.3at）
Power Consumption	＜25.4W
Temperature	Operating Temperature: -10°C to 50°C
	Storage Temperature: -40°C to 70°C
Humidity	Operating Humidity: 5% to 95% (non-condensing)
	Storage Humidity: 5% to 95% (non-condensing)
Installation Mode	Ceiling/wall-mountable
IP Rating	IP41
Safety Standard	GB4943, EN/IEC 60950-1

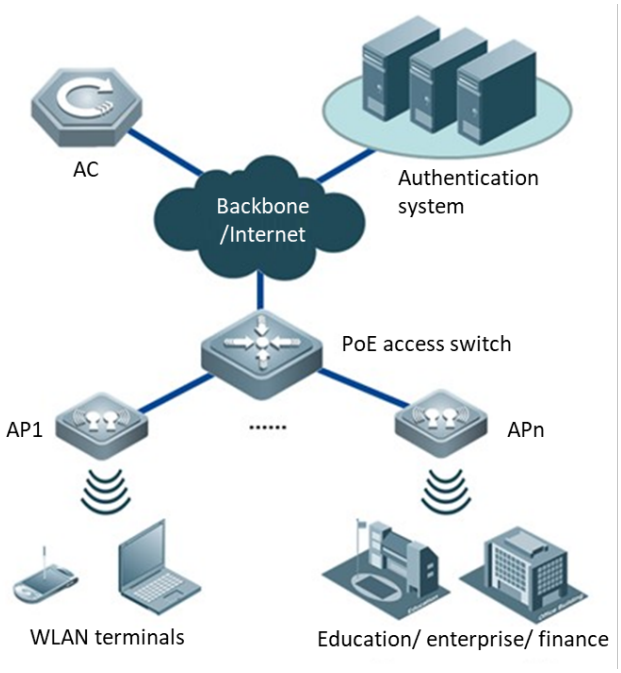
EMC Standard	GB9254, EN301 489	
Health Standard	EN 62311	
Radio Standard	Radio Transmission Equipment Type Approval Certificate, EN300 328, EN301 893	
Software Specifications		
WLAN	Maximum clients per AP	384
	Recommended clients per AP	64
	BSSID capacity	Up to 32
	SSID hiding	Support
	Configuring the authentication mode, encryption mechanism and VLAN attributes for each SSID	Support
	Remote Intelligent Perception Technology (RIPT)	Support
	Intelligent device recognition technology	Support
	Intelligent load balancing based on the number of users or traffic	Support
	STA control	SSID/radio-based
	Bandwidth control	STA/SSID/AP-based bandwidth control
Security	PSK and web authentication	Support
	Data encryption	WPA（TKIP）, WPA-PSK, WPA2（AES）, WEP（64/128 bits）
	WeChat authentication	Support
	QR code authentication	Support
	SMS authentication	Support
	PEAP authentication	Support
	Data frame filtering	Whitelist, static/dynamic blacklist
	User isolation	Support
	Rogue AP detection and countermeasure	Support
	Dynamic ACL assignment	Support
	RADIUS	Support
	CPU Protection Policy (CPP)	Support
	Network Foundation Protection Policy (NFPP)	Support
Routing	IPv4 address	Static IP address or DHCP reservation
	Multicast	Multicast to unicast conversion
	Network management	Telnet, TFTP, web management

Management and Maintenance	Wi-Fi positioning	RBIS
	Wi-Fi marketing	WMC/MCP
	Fault detection and alarm	Support
	Statistics and logs	Support
	FAT/FIT switching	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.

5 Typical Applications

RG-AP840-I is suitable for spacious and simple-structured buildings with high-density users, such as conference rooms, libraries, classrooms, bars, recreation centers, etc. Clients can deploy the AP flexibly according to their needs.

RG-AP840-I typical networking diagram:



6 Ordering Information

Model	Description
RG-AP840-I	High-density 802.11ax indoor wireless access point, dual-radio dual-band, up to 400Mbps for 2.4G (2*2 MIMO), up to 4.8Gbps for 5G (4*4 MIMO), up to 6 spatial streams, wireless access rate up to 5.2Gbps per AP. Supports concurrent 802.11a/b/g/n/ac and 802.11ax, FAT/FIT modes, PoE+ and local power supply (PoE+ and local power adapters are sold separately)

7 More Information

For more information about the Ruijie RG-AP840-I Wireless AP, please visit http://www.ruijienetworks.com or contact your local Ruijie sales representative.

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