RG-AP700 Series
Wireless Access Point

Equipped with Ruijie's highly acclaimed patented X-Sense[1] Smart Antenna technology, the Ruijie RG-AP700 Wireless AP Series tops the class by supporting the latest 802.11ac Wave 2 standard and MU-MIMO. The RG-AP700 Series greatly improves the AP coverage performance and ensures an optimal access experience for smart mobile devices. The AP also features security, radio frequency (RF) control, mobile access, Quality of Service (QoS) and seamless roaming. Teaming up with Ruijie RG-WS Wireless Controller Series, wireless data forwarding, security and access control can be accomplished with ease.

RG-AP700 Series can be centrally managed by either RG-WS series Wireless Controller (appliance-basis) or Ruijie MACC (Managed @ Cloud Center) cloud management platform, which greatly boosts the AP management efficiency with streamlined planning, monitoring, configuration, control and maintenance.

Supporting concurrent 802.11ac Wave 2 and 802.11n, the wall and ceiling mountable RG-AP700 Series allows easy and safe installation on walls or ceilings, and offers local power and Power over Ethernet (PoE) options. This series is an ideal match for environments such as large-sized campuses, offices, hospitals, and hotspots of service providers.

Feature Highlights

Best-performing and Cost-effective 802.11ac Wave 2 MU-MIMO

- Built-in MU-MIMO Smart Antenna to realize ubiquitous AP coverage

- The RG-AP740-I flagship AP offers tri-radio dual-band 4x4 MIMO with performance of up to 2.966Gbps

Smart Antenna Optimized for

High-density Scenario

- Increased device density of up to 500+ concurrent users

- Unprecedented X-speed technology to effectively reduce Wi-Fi interference

Cloud Management Ready

- Decreased network complexity with the unified cloud management of RG-MACC-BASE

- Intelligent and streamlined AP planning and management to boost network efficiency with RG-MACC-SSP

Advanced Marketing WiFi Features

- RG-AP700 series integrated Bluetooth iBeacon and wireless positioning technology

- Customizable social media logins with captive portals and custom ads/campaign management enabled by the RG-MACC-SAM

| RG-AP740-I Wireless AP | RG-AP740-I(C) Wireless AP | RG-AP720-I Wireless AP |

Figure 1: RG-AP700 Series Product Family

Note:
[1] Model AP740-I support patented 4th Gen X-Sense Smart Antenna.

Product Features

802.11ac Wave 2 Ready

The MU-MIMO feature, short for Multi-User Multiple-Input Multiple-Output, refers to one of the milestone technologies of 802.11ac Wave 2 enabling information transfer to multiple terminals at the same time. Powered up by the industry-leading MU-MIMO technology, the RG-AP700 Series supports the simultaneous transmission of multiple terminals under multi-user scenarios, significantly improving the wireless data concurrency and multi-user access experience.

The Industry's Thinnest Smart AP

The exquisite enclosure of RG-AP720-I is merely 20mm thick, integrating light, compact and aesthetic features into one piece. The impressive design can fit into various scenarios, no matter an immaculate office or a high-end hotel conference room.

Carrier-class Design

The IP41-rated RG-AP700 Series deploys a totally enclosed design for absolute dustproof performance. The case prevents erosion by dripping or condensation to maximize the AP life cycle. In addition, the dual Ethernet ports design[2] not only solves the problem of interface data backup, but also provides flexible networking modes for the network which requires intranet and Internet isolation. Both Ethernet ports support PoE for power backup and load power feature. PoE switch (non-PoE+) can be deployed for dual power supply to save network investment cost. AP740-I equipped with an aviation aluminum bottom case with a zero-cooling-hole design, the aluminum case achieves high-efficiency cooling with strong adaptability at the same time.
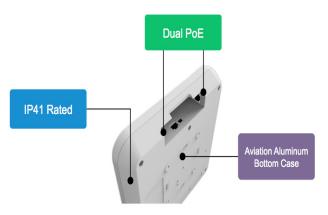
Smart Antenna

Automated Selection of Optimum Signal Paths

Gearing up with the patented Smart Antenna matrix architecture, the RG-AP700 Series supports multiple antenna combinations and effectively solves the weakness of coverage dead zones of traditional antennas. Regardless of the location of smart device, the RG-AP700 Series customizes and aligns the best signal path to achieve full coverage.

Enhanced Signal Strength with the Same Power

The RG-AP700 Series accurately calculates the location of smart devices and improves the signal strength accordingly with dynamic combinations of antennas, ensuring the best signal coverage. Increased signal strength might come with higher radiation level but the Smart Antenna is an exception. The transmit power of APs completely complies with the safety standards. Ruijie Networks is focused on how to boost the best signal on your smart devices.

Reduced Interference & Simplified Deployment

Interference is the biggest challenge to any wireless network deployment. The interference problem becomes obvious when a large number of APs are deployed in a small space. The RG-AP700 Series automatically adjusts the wireless signal output direction according to the user location. When subject to interference, the Smart Antenna and X-Sense Smart Antenna technology can effectively reduce interference by more than 30%.
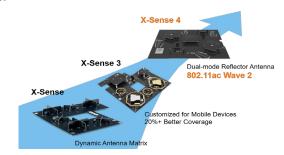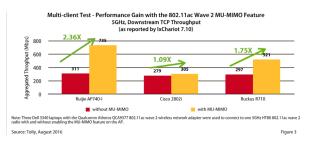

Figure 3: X-Sense 4 Smart Antenna

Figure 4: Tolly Certification Report

Figure 2: Carrier-class Design(AP740-I)

Note:
[2] The Model AP740-I &AP740-I(C) support dual uplink port for redundancy.

High-speed & Energy-saving Design

Energy-saving Design

The RG-AP700 Series adopts advanced energy-saving features including single-antenna standby, dynamic MIMO energy saving technology, enhanced transmission technology with automatic power saving and per-packet power control. Coupled with the high-performance power supply design, the RG-AP700 Series guarantees high-speed wireless access and saves energy consumption by 25%.

Industry-leading Local Forwarding Technology

Employing an industry-leading local forwarding technology, the RG-AP700 Series eliminates the traffic bottleneck of wireless controllers. In collaboration with the RG-WS Wireless Controller Series, users can flexibly pre-configure a data forwarding mode for the APs. The APs can determine whether to forward data to the wireless controller according to a SSID or user VLAN, or directly send the data to a wired network for data exchange.

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

Abundant QoS Policies

The RG-AP700 Series 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-AP720-I realizes timely and quantitative transmission of audio and video, and guarantees smooth operation of multi-media applications.
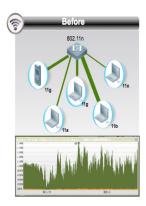
With the multicast-to-unicast conversion technology, the RG-AP700 Series resolves the video interruption problem due to packet loss or long delay in the wireless Video on Demand (VoD) system. The RG-AP700 Series highly enhances user experience with multicast video over wireless networks.

Intelligent Wireless Experience

X-Speed Wireless Experience

Under the interference of multiple APs, the RG-AP700 Series effectively shortens the waiting time of wireless packet transmission, allowing users of Ruijie wireless network to enjoy high-speed wireless experience in environments with severe interference.

The RG-AP700 Series solves the problems such as high latency and low network speed due to the use of old wireless LAN cards or end devices which are far away from the APs. The RG-AP700 Series assigns the same usage duration of wireless links for end devices of various types, improving the AP concurrency and ensuring a fair high-speed wireless network for all users with any devices.
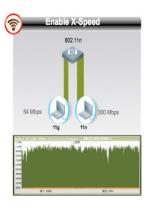

Figure 5: X-speed Technology Gives Wireless Performance a Strong Boost

Remote Intelligent Perception Technology (RIPT)

In the traditional network architecture where FIT APs are centrally managed by a wireless controller, packets received by the APs must be transmitted to the controller before being forwarded. When the wireless controller becomes faulty, the APs will fail to work properly causing whole network breakdown. Ruijie's latest RIPT provides you a complete disaster recovery solution and enables the APs to implement intelligent link perception. Once the faulty controller is detected, the APs will quickly switch to the intelligent mode to continue data forwarding, ensuring the high availability of the wireless network and keeping wireless users always online.
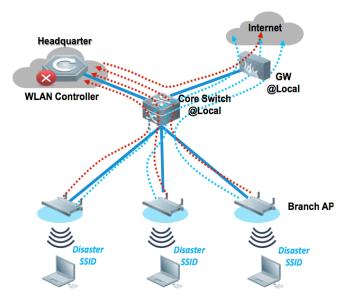

Figure 6: RIPT (Disaster Recovery)

Intelligent Load Balancing

On a high-density wireless LAN, the RG-AP700 Series collaborates with the Wireless Controller Series 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 Quality of Service (QoS), offering higher network availability.
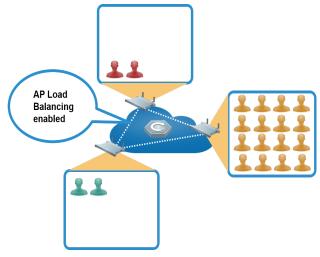

Figure 7: Intelligent User Load Balancing

Seamless Roaming Experience

Teaming up with the RG-WS Wireless Controllers or MACC Cloud Management Platform, the RG-AP700 Series allows wireless users to roam seamlessly on Layer 2 and Layer 3 networks without data interruption.

Comprehensive Security Protection

Secure User Access

The RG-AP700 Series 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, host compliance check, network behavior monitoring, network attack defense, etc. All these control features ensure that users are authenticated before accessing the network services securely.

Virtual AP Technology

With the virtual AP technology, the RG-AP700 Series supports up to 48 virtual APs. Network administrator can separately encrypt and isolate subnets or VLANs that have the same SSID. The deployment thereby enables specified authentication

Note:
[3] The advanced authentication options (e.g. Portal, SMS, QRCode and Voucher) require the deployment of RG-MACC-SAM

mode and encryption mechanism for each SSID.

Comprehensive Wireless Protection

In conjunction with RG-MACC-SAM and RG-WS Wireless Controllers, the RG-AP700 Series offers a breadth of security features including WIDS (Wireless Intrusion Detection System), RF interference tracking, rogue AP containment, anti-ARP snooping, DHCP protection and beyond for all-around security protection.

Robust Authentication Options

As the key components of the Ruijie's intelligent cloud-based RG-MACC platform, the RG-AP700 Series offers the secure and optimal network connections that are required in multiple scenarios. The RG-AP700 Series supports convenient and high-efficiency Protected Extensible Authentication Protocol (PEAP), Web Portal Authentication, SMS Authentication, and Voucher (QR Code) Authentication[3].

Voucher (QR code) Login authentication is another wireless security and accounting highlight, enabled by Ruijie's RG-MACC-SAM platform. It would generate one-time or pay-per-use vouchers in recurring or one-time format on time-based

Figure 8: Advanced Guest Interfaces of the QR Code Authentication

policies, streamlining and simplifying the generation and management of QR code or Vouchers.

Flexible Switching between FAT & FIT Modes

The RG-AP700 Series supports flexible switching over the FAT and FIT modes according to the networking requirements of

different industries. The FIT mode can achieve the installation with zero configuration, and a thorough remote management significantly improves the maintenance and management efficiency of wireless network.

Cloud Management Ready

The RG-AP700 Series can be managed in a cloud-enabled and unified approach that features the real-time and intuitive monitoring, planning, configuration and maintenance over the Ruijie RG-MACC-BASE platform. In conjunction with RG-MACC-BASE, the RG-AP700 Series can be flexibly deployed, efficiently managed and easily upgraded, freeing up significant level of IT manpower with increased manageability.

Along with the deployment of RG-MACC-SAM and RG-MACC-LBS, the RG-AP700 Series also supports integrated marketing features and location-based analytics to reach new customers and keep the existing ones. Therefore, the RG-AP700 Series in conjunction with the RG-MACC platform will upgrade the AP deployment and Wi-Fi access as a powerful tool of monetization with a tremendous breadth of security protections.

Techincal Specifications

Model	RG-AP740-I	RG-AP740-I(C)	RG-AP720-I
Radio	Concurrent tri-radio dual-band	Concurrent dual-radio dual-band	Concurrent dual-radio dual-band
Transmission Protocol	802.11a/b/g/n, 802.11ac Wave 1, 802.11ac Wave 2		
Operating Bands	802.11b/g/n: 2.4GHz to 2.483GHz 802.11a/n/ac: 5.150GHz to 5.350GHz, 5.47GHz to 5.725GHz, 5.725GHz to 5.850GHz (vary depending on countries)		
Antenna	Built-in "X-Sense 4" Smart Antenna, 4×4 MU-MIMO	Built-in Smart Antenna 4x4 MU-MIMO	Built-in Smart Antenna 2×2 MU-MIMO
Spatial Streams	4	4	2
Operating Bandwidth	HT160, HT80, HT40, HT20	HT160, HT80, HT40, HT20	HT80, HT40, HT20
Transmission Rate	5G 11ac:1733Mbps (dual 5G radios) 2.4G 11n: 800Mbps 2.4G 11n: 433Mbps	5G 11ac: 1733Mpbs 2.4G 11n: 800Mpbs	5G 11ac: 867Mbps 2.4G 11n: 400Mbps
Modulation	OFDM: BPSK@6/9Mbps QPSK@12/18Mbps 16-QAM@24Mbps 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK@5.5/11Mbps MIMO-OFDM: PSK, QPSK, 16QAM, 64QAM and 256QAM	OFDM: BPSK@6/9Mbps QPSK@12/18Mbps 16-QAM@24Mbps 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK@5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM	OFDM: BPSK@6/9Mbps QPSK@12/18Mbps 16-QAM@24Mbps 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps DQPSK@2Mbps CCK@5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM and 256QAM
Receiver Sensitivity	11b: -91dBm(1Mbps), -88dBm(5Mbps), -85dBm(11Mbps) 11a/g: -89dBm(6Mbps), -80dBm(24Mbps), -76dBm(36Mbps), -71dBm(54Mbps) 11n: -83dBm@MCS0, -65dBm@MCS7, -83dBm@MCS8, -65dBm@MCS15 11ac HT20: -83dBm(MCS0), -57dBm(MCS9) 11ac HT40: -79dBm(MCS0), -57dBm(MCS9) 11ac HT80: -76dBm(MCS0), -51dBm(MCS9)		
Maximum Transmit Power	≤100mW		
Adjustable Power	1dBm		
Service Ports	2 10/100/1000BASE-T ports (Both ports support PoE)	2 10/100/1000BASE-T Ethernet uplink ports (PoE)	2 10/100/1000BASE-T ports (LAN1 port supports PoE)
Management Port	1 console port		
Reset Button	Support		
USB port	Support		
Anti-theft Lock	Support		

Model	RG-AP740-I	RG-AP740-I(C)	RG-AP720-I
LED Indicators	1 LED (red, green, blue, orange, and flashing modes, breathing flashing mode for smart device access, and the indicator can be switched off to silent mode)	1 LED (red, green, blue, orange, and flashing modes, breathing flashing mode for smart device access, and the indicator can be switched off to silent mode)	1 LED (red, green, blue, and flashing modes, breathing flashing mode for smart device access, and the indicator can be switched off to silent mode)
Power Supply	Local power supply (DC 48V) and PoE+ (802.3af/802.3at), Support dual 802.at power supply, or dual 802.af power supply	Local power supply (DC 48V) and PoE+ (802.3af/802.3at) Support dual 802.at power supply, or dual 802.af power supply	Local power supply (DC 48V) and PoE+ (802.3af/802.3at)
Power Consumption	<25.4W	<25.4W	<12.95W
Bluetooth	BT4.0 (BLE), iBeacon		
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		
Radio Standard	EN300 328, EN301 893		
Wi-Fi Alliance Certification	Support		
Dimensions (W x D x H) (mm)	230 × 230 × 47 (Height of AP only, excluding case and mount kit)	230 × 230 × 42 (Height of AP only, excluding case and mount kit)	180 × 180 × 20 (Height of AP only, excluding case and mount kit)
Weight	1.3kg	1.0kg	0.37kg

WLAN	Maximum clients per AP	512	512	256
	BSSID capacity	Up to 16 per radio Up to 48 per AP	Up to 16 per radio Up to 32 per AP	Up to 16 per radio Up to 32 per AP
	SSID hiding	Support		
	Configuring the authentication mode, encryption mechanism, and VLAN attributes for each SSID	Support		
	WDS (bridge mode)	Support		
	Remote Intelligent Perception Technology-(RIPT)	Support		
	X-speed	Support		
	Intelligent identification of smart device	Support		
	Intelligent load balancing based on the number of users or traffic	Support		
	STA control	SSID/radio-based		
	Bandwidth control	STA/SSID/AP-based speed control		

Model		RG-AP740-I	RG-AP740-I(C)	RG-AP720-I
Security	PSK, web, and 802.1x authentication	Support		
	Data encryption	WPA (TKIP), WPA2 (AES), WPA-PSK, and WEP (64/128 bits)		
	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		
	Wireless Intrusion Prevention System (WIPS)	Support		
Routing	IPv4 address	Static IP address or DHCP reservation		
	IPv6 CAPWAP tunnel	Support		
	ICMPv6	Support		
	IPv6 address	Manual or automatic configuration		
	IPv6 tunnel	Manual or automatic configuration		
	Multicast	Multicast to unicast conversion		
Management and Maintenance	Network management	SNMP v1/v2C/v3, Telnet, SSH, TFTP, FTP and web management		
	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.		

Typical Applications

Application Scenario 1

As a key component of the cloud-managed RG-MACC solution, the high-performance RG-AP700 Series is targeted at high-capacity scenario, such as shopping malls and Smart City projects, featuring BT integration for IoT readiness. Compatible with the RG-MACC platform, the RG-AP700 Series is able to scale its deployment according to the evolving requirements of enterprise-grade networks as shown in the following solution diagram.
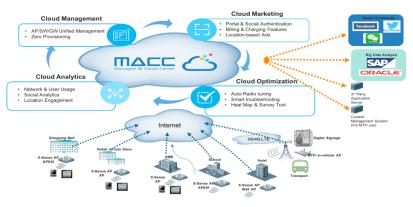
Figure 9: RG-MACC Solution Diagram

Application Scenario 2

RG-AP700 Series in combination with various RG-WS Series Wireless Controller is the ideal match for spacious and simple-structured buildings with high end user density, such as meeting rooms, libraries, classrooms, bars, and recreation centers. Clients can deploy the devices flexibly according to their needs.
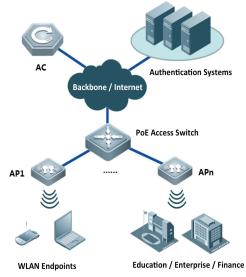

Figure 10: RG-AP700 Series Topology Diagram

Ordering Information

Model	Description
RG-AP740-I	Indoor Wireless Access Point, built-in "X-Sense 4" Smart Antenna, tri-radio dual-band, 4 spatial streams, access rate up to 2.966Gbps per AP Support concurrent 802.11ac Wave 2 and 802.11a/b/g/n, FAT/FIT modes, 2 10/100/1000BASE-T up-link ports, support PoE+ and local power supply, integrated with BLE/Bluetooth iBeacon (PoE+ and local power adapters sold separately)
RG-AP740-I(C)	Indoor Wireless Access Point, built-in Smart Antenna, dual-radio dual-band, 4 spatial streams, access rate up to 2.533Gbps per AP Support concurrent 802.11ac Wave 2 and 802.11a/b/g/n, FAT/FIT modes, 2 10/100/1000BASE-T up-link ports, support PoE+ and local power supply, integrated with BLE/Bluetooth iBeacon (PoE+ and local power adapters sold separately)
RG-AP720-I	Indoor Wireless Access Point, built-in Smart Antenna, dual-radio dual-band, 2 spatial streams, access rate up to 1.267Gbps per AP Support concurrent 802.11ac Wave 2 and 802.11a/b/g/n, FAT/FIT modes, 2 10/100/1000BASE-T up-link ports, support PoE+ and local power supply, integrated with BLE/Bluetooth iBeacon (PoE+ and local power adapters sold separately)

Innovation · Simplicity · Experience

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