RG-AP880-I

Wi-Fi 6 Indoor AP Datasheet

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Product Highlights

- **Stacked ultra-high-density antenna design:** The 5th gen X-sense smart antenna for 360° zero-dead zone coverage
- **Max 5.95Gbps (Total 12 Spatial Streams) with Concurrent Dual-Band Design**
- **Max 22G wired access capacity** (with dual 10G port design)
- **Max 1024 Client** connections
- **OFDMA, MU-MIMO and BSS Technology** for minimal wireless signal interference
- **IoT Ready:** Integrated with BLE module and one IoT extension port with PoE Out (passive)
- **AI Wireless Optimization:** one-click optimization powered by Ruijie Cloud technology
- **Hybrid Management:** support standalone AP to over thousands of APs with deployment options of appliances, private cloud or public cloud service
- **Mobility Management:** Free mobile app available for RG-MACC-Base private cloud or Ruijie Public Cloud customers

Product Overview

RG-AP880-I is our next-generation flagship ultra-high-performance Wi-Fi 6 enterprise AP designed for challenging high density indoor scenarios, powered by the 5th gen X-sense smart antenna for 360° zero-dead zone coverage. With the built-in IoT module, enterprise customers can be ready for future IoT expansion to boost the operational efficiency and customer experience.

The Ruijie RG-AP880-I supports concurrent dual-band dual-radio (4x4:4 in 2.4GHz, 8x8:8 in 5GHz), up to 12 total spatial streams and a maximum of 5.95Gbps wireless throughput. Taking the advantage of Wi-Fi 6 OFDMA Modulation, MU-MIMO, and BSS Color Spatial Reuse, the RG-AP880-I guarantees minimal signal interference and a maximum of 1024 client connections.

Additionally, RG-AP880-I provide four Ethernet ports with totally 22G wired access capacity, including two 10G Ethernet Uplink Port (1 Copper and 1 Fiber), one Gigabit Uplink, and one LAN port for external IoT sensor connection with PoE out (passive) feature. The RG-AP880-I support dual-port power supply redundancy design for high availability, guarantee for zero service impact even any uplink port failure.

Upon the uprising challenges of management efficiency and wireless security, all Ruijie enterprise APs support hybrid management mode. Either deployed as standalone AP (Fat mode) or managed AP (Fit mode), the AP will detect the operation mode automatically without extra effort on firmware upgrade. For additional security and operation, we recommend the enterprise customers to choose either one of the below wireless controller options depending on the functionality and capacity:

- **Hybrid Cloud: RG-WS6000 Series Wireless Controller (on-premises) Plus Cloud Management (Optional)** – targeted for enterprise office and campus with single or multiple sites and high-density AP deployment. The controller appliances are installed at the customer's site with fully integrated wireless management and authentication feature, supporting up to 5000 APs per cluster. Optionally, the cloud management platform allows for value-added features like centralized device configuration and monitoring, AI radio (RF) optimization, reporting, etc.

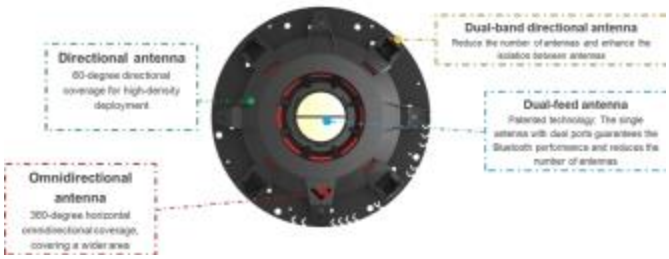
• **Private Cloud: RG-MACC Software Controller** – targeted for ISP/MSP, government, or multi-national corporation (MNC) with diverse customer sites and demand on integration of their billing, portal and security systems. The RG-MACC supports unified device management, not only for wireless access points, but also switches and gateway devices.

• **Public Cloud: Ruijie Cloud** – Ruijie Public Cloud service (powered by RG-MACC) is targeted for the SME segment with integrated captive portal, authentication (such as PPSK for employees, Facebook, voucher, account, etc.), and reporting features. Together with Ruijie Cloud Mobile App (free download), SME customers can provision and manage their networks at fingertips.

Product Features

New 5th gen X-Sense Smart Antenna

Powered by Ruijie patent smart antenna technology – the 5th gen X-Sense, the RG-AP880-I built-in with 18 integrated antenna arrays, the AP supports intelligent algorithm switching to realize automatic switching between ordinary 360° zero-dead-zone coverage and high-density deployment scenario.



Stacked ultra-high-density antenna design:
Built-in with 18 integrated antenna arrays, guarantees 360°coverage

High-reliability antenna design:

All-in-one Snap-on design for improved antenna reliability

Industrial-grade Reliability Design

Ruijie RG-AP880-I is designed for scenarios demand for 24x7 operation with high utilization usage. To maximize the equipment stability, the RG-AP880-I upper and lower metal interlayer design of the AP effectively solves the problem of heat dissipation and electromagnetic interference, and ensures product reliability. Plus the IP41 protection rating and Dual-PoE design, the RG-AP880-I is highly recommended for any extreme working environments.

Multi-level Reliability Design

High Scalability Design

With the design of 4 Ethernet ports, the RG-AP880-I provide totally 22G wired access capacity, including two 10G Ethernet Uplink Port (1 Copper and 1 Fiber), one Gigabit Uplink, and one Gigabit LAN port for external IoT sensor connection with PoE out (passive) feature. The RG-AP880-I support dual-port power supply redundancy design for high availability, guarantee for zero service impact even any uplink port failure. Additionally, the RG-AP880-I is IoT ready enabled by the built-in BLE module, without the need of external module and extra investment.

RG-AP880-I built-in with 4 Ethernet ports
(Dual 10G + 1G Uplink + 1G Downlink/IoT Sensor)

Wi-Fi 6 Technology

1024-QAM High-speed Access

The RG-AP880-I adopts the dual-radio dual-band design and 2G+5G is recommended. With the next-generation 802.11ax for 5G, the maximum access rate 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.

OFDMA High-density User Access

The RG-AP880-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 back-off can be reduced, thereby reducing network latency and improving network efficiency. In a high-density deployment environment, the average rate per user is increased to four times of 802.11ac.

Bi-Directional MU-MIMO

Compared with the previous Wi-Fi 5 (802.11ac) with only downlink MU-MIMO support, Wi-Fi 6 supports both uplink and downlink MU-MIMO (multi-user, multiple-input and multiple-output). Therefore, Ruijie RG-AP800 Series access points can connect clients simultaneously, significantly improving the wireless performance and experience.

TWT (Target Wake Time)

Target wake time (TWT) is used to help minimize contention between clients and reduce the amount of time a client in power save mode to be awake. Energy consumption is reduced by up to 70% of the battery consumption, thereby improving battery life.

Spatial Reuse with BSS Color

The RG-AP880-I supports spatial reuse with basic service set (BSS) color 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 receiving packets, BSS coloring is used to quickly identify the packet of the external BSS. If the signal strength is lower than the receiving threshold of the external BSS, the packet will be ignored. The transmission of the internal BSS packet will be not affected. This technology can implement channel reuse in a high-density scenario, greatly reducing the impact of co-channel interference for the actual network deployment.

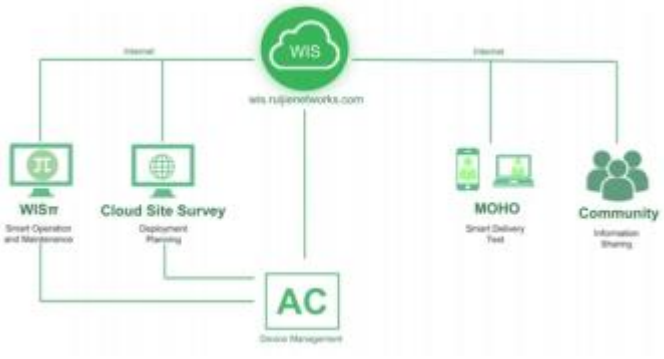
Wi-Fi 6 Equipment For All Scenarios: Always One Option Fit For You

Ruijie is one of the leading enterprise networking suppliers worldwide and committed to providing the best Wi-Fi experience to our stakeholders. We are the first supplier to provide full-scenario Wi-Fi 6 access point solution in the market, ranging from indoor, wall plate to outdoor access points, guaranteeing perfect wireless experience in various situations.

For details, please visit https://www.ruijienetworks.com/products/wireless-wifi6

AI Wireless Optimization

Seamless Integration with WIS Cloud



WIS Cloud Smart Services Platform

Ruijie WIS is an AI-based intelligent services platform designed for WiFi optimization on the cloud. Seamlessly integrated with Ruijie hardware AC on premise, it helps to streamline WiFi deployment planning, delivery testing as well as operation diagnosis. With WIS you can achieve:

- Cloud site survey for deployment planning
- Smart mobile apps for provisioning
- Visualize the user experience
- One-click WiFi optimization
- and it is FREE!

Ruijie MOHO App for WiFi Testing

As part of the Ruijie WIS solution, Ruijie MOHO is a mobile app designed to carry out WiFi testing at your fingertips. Comprehensive testing tools like collaborative test, speed test, multi-point test and etc. are available in the Ruijie MOHO app, which can be freely downloaded from the iOS App Store and Google Play.

WISπ One-click Optimization

Another key feature from Ruijie WIS is that WISπ provides one-click optimization by using the AI-based machine learning automated correlation based on the real-time information gathered from your WiFi network. It truly optimizes the entire WiFi network performance by providing the best suitable configuration fine-tuning by just a click. For more details, please visit Ruijie WIS official website at http://wis.ruijienetworks.com/

Industry-leading Local Forwarding Technology

Employing an industry-leading local forwarding technology, the RG-AP880-I breaks through the limitation of 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-AP880-I. The AP also controls whether the data will be forwarded via the wireless controller according to the SSID or user VLAN, or directly sent to the wired network for data exchange.

The local forwarding technology can classify and forward delay-sensitive data which requires real-time transmission through the wired network to greatly alleviate the traffic pressure on the wireless controllers and better meet the high traffic transmission requirements of the 802.11ax network.

Abundant QoS Policies

The RG-AP880-I supports a wide variety of QoS policies. For example, it provides WLAN/AP/STA-based bandwidth limitations and Wi-Fi multimedia (WMM) which defines different priorities for different service data. The RG-AP880-I realizes timely and quantitative transmission of audio and video, and guarantees smooth operation of multi-media applications.

With the multicast-to-unicast technology, the RG-AP880-I resolves the video lagging problem due to packet loss or high latency in the wireless network, and highly enhances user experience of the multicast video services of wireless network.

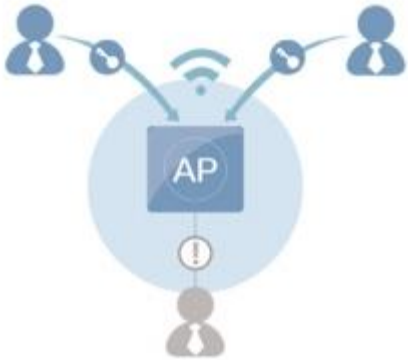
Comprehensive Security Protection

Secure User Access

The RG-AP880-I supports a wide range of authentication methods such as web, 802.1x, PPSK (one-time dynamic password for staff), voucher/ access code, user account, and social authentication. Complying with the standard network access control, it offers 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 guarantee high network security for authenticated users.

Various enterprise authentication options for guests and employees

Personal Pre-shared Keys (PPSK)



Simple and Effective Wireless Security Practice

Traditional Pre-shared Keys (PSK) are shared by all users on a WLAN, giving it potential risk of PSK leak-out.

Ruijie Personal PSK (PPSK) is an easy-to-setup wireless authentication method with enterprise-grade security level. Credentials can be created and revoked individually. Each PPSK can also be tied to a unique user/ machine.

With PPSK, you can enjoy the benefits of:

- High security by using different passwords for each user and device for individual SSID
- Simple deployment with batch account creation
- Ease of use, offering the same experience as WPA / WPA2-PSK
- Out-of-box feature in AC
- No additional AAA required

Virtual AP Technology

With the virtual AP technology, the RG-AP880-I supports up to 48 ESSIDs. Network administrator can separately encrypt and isolate VLANs or subnets of the same SSID, thereby enabling specified authentication mode and encryption mechanism for each SSID.

Comprehensive Wireless Protection

Coupled with RG-WS6000 Series or RG-MACC Wireless Controllers, the RG-AP880-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.

Hybrid Management

Flexible Management Options

All Ruijie enterprise APs support hybrid management mode. Either deployed as standalone AP (Fat mode) or managed AP (Fit and MACC mode), the AP will detect the operation mode automatically without extra effort on firmware upgrade. For additional security and operation, we recommend the enterprise customers to choose either one of below wireless controller options depending on the functionality and capacity:

Below are the summarized feature highlights for various Ruijie management system options which target for specific industry segments:

Category	Standalone AP	Hardware Controller (RG-WS6000)	Ruijie Public Cloud	Hybrid Cloud* (RG-WS6000 + Ruijie Cloud)	Private Cloud (RG-MACC)
Target Segment	Small Office (<10 Employees)	Enterprise, Education, Large Campus	Small and Medium-sized Enterprise (<500 Employees)	ISP/MSP, Gov. or MNC	ISP/MSP, Gov. or MNC
Deployment Mode	On-premises	On-premises	Cloud Service	On-premises + Cloud Service	Software-based
Device Capacity	N/A	Up to 5000	Virtually Unlimited	Up to 5000	Virtually Unlimited
Unified Management	N/A	AP only	AP, Switch and Gateway	AP, Switch and Gateway	AP, Switch and Gateway
Radio Optimization (powered by WIS)	N/A	V	V	V	V
Employee Authentication	Basic PSK	PSK, PPSK, 802.1x	PSK, PPSK, Access Code, Account, 802.1x	PSK, PPSK, 802.1x	PSK, PPSK, Access Code, Account, 802.1x
Guest Authentication	Basic PSK	Captive Portal	Captive Portal, One-click, Voucher	Captive Portal, One-click, Voucher**	Captive Portal, One-click, Voucher
Marketing Wi-Fi	N/A	N/A	Coming Soon*	Coming Soon*	Support
Reporting	N/A	N/A	Support	Support	Support
Mobile App	N/A	Coming Soon*	Support	Coming Soon*	Support

*new feature to be available in year 2020
**Ruijie EG Gateway required

Web and CLI Management Interface

The RG-AP880-I provides both web and command-line interface (CLI) for the AP and wireless controller, suitable for application in different scenarios. CLI design allows the networking professionals to perform fast troubleshooting, bulk configuration import or modification. Web GUI mangaement should be perfect for the majority of general scenarios to plan, operate and maintain the wireless network without the need of customization.

Mobile Monitoring and Optimizing

Ruijie is committed to providing more simple networking experience for customers by launching a free mobile app[1] (namely Ruijie Cloud) for unified device lifecycle managmeent, which is not only for Ruijie access points, but also for switches and security gateways, from provisioning, monitoring, configurations to optimization. For details, please visit our official website at https://www.ruijienetworks.com/products/smb/cloud-service/cloud-service/ruijie-cloud-solution/mobile-app

GET IT ON Google Play Download on the App Store

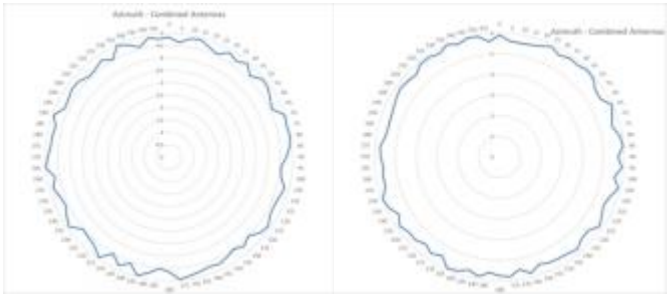
Warranty Information

The Ruijie RG-AP880-I Access Point come with 3 year warranty or extended as limited lifetime warranty[2] that provides full warranty coverage of hardware for as long as the original end user continues to own or use the product before the end of life of the product. The warranty includes free hardware maintenance and remote technical support for any software problem. For more details, please visit https://www.ruijienetworks.com/support/servicepolicy.

Antenna Patterns

Horizontal planes (top view)

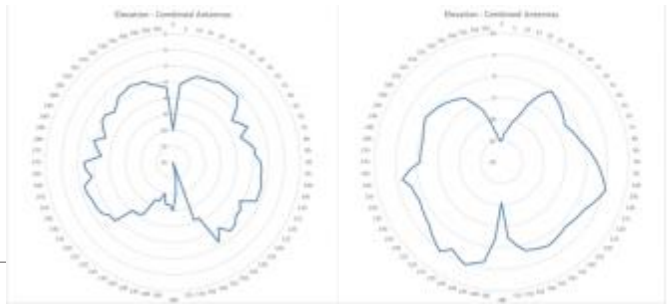
Below are the RG-AP880-I 2.4GHz and 5GHz azimuth antenna patterns:



RG-AP880-I 2.4GHz (Left) and 5GHz (Right) Azimuth Antenna Patterns

Vertical (elevation) planes (side view, AP facing down)

Below are the RG-AP880-I 2.4GHz and 5GHz elevation antenna patterns:



RG-AP880-I 2.4GHz (Left) and 5GHz (Right) Elevation Antenna Patterns

Note:
[1] Ruijie Cloud mobile app is compatible with Ruijie Cloud service, RG-MACC or RG-WS6000 Series wireless controller

[2] For country availability, please visit official website for details

Technical Specifications

Model	RG-AP880-I
Hardware specifications	
Radio	Dual-radio dual-band (2.4G+5G): 2.4G 4×4 MIMO + 5G 8×8 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, 5.47~5.725GHz, 5.725~5.850GHz (vary depending on different countries)
Spatial Streams	Up to 12: 4×4:4 in 2.4GHz , 8×8:8 in 5GHz
Max Throughput	Maximum throughput of 2.4G: 1.15Gbps Maximum throughput of 5G: 4.8Gbps Maximum throughput per AP: 5.95Gbps
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 (up to 1024-QAM)
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)
Antenna	Integrated antenna design (5th gen X-Sense patent smart antenna)
Antenna Gain	2.4G: 3dBi 5G: 3dBi
Service Ports	1 100M/1000M/2.5G/5G/10G Base-T (PoE In), 1 10G SFP+, 1 10/100/1000M Base-T ports (PoE In), 1 10/100/1000M Base-T ports (LAN/IoT Expansion)
Management Port	1 console port
USB	1 USB 2.0 port
IoT Capability	BLE
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.)
Transmit Power	≤100mw (20dBm) (vary depending on different countries)
Adjustable Power	1dBm
Power Supply	Local power supply (DC 48V/1A) (DC Power adapters should be purchased from third-party vendors separately if needed) PoE+ (802.3at)
	PoE (802.3af) –device cannot power up
Power Consumption	<40W

Model	RG-AP880-I
Physical Specifications	
Temperature	Operating Temperature: -10°C to 45°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
Dimensions (Diameter x Height)	290mm×64mm (Height of the AP only, excluding the mount kit)
Weight	AP 3.05Kg, Mount Kit 0.2Kg
IP Rating	IP41
Certifications and Compliance	
Safety Standard	GB4943, EN/IEC 60950-1
EMC Standard	GB9254, EN301 489
Health Standard	EN 62311
Radio Standard	SRRC, EN300 328, EN301 893
Software Specifications	
WLAN	Maximum clients per AP
	1024

Model		RG-AP880-I
WLAN	Bandwidth control	STA/SSID/AP-based bandwidth control
	Data encryption	WPA (TKIP), WPA-PSK, WPA2 (AES), WEP (64/128 bits)
	PSK and web authentication	Support
	PPSK authentication (For Employee)	Support (require wireless controller)
	802.1x 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
IP	IPv4 and IPv6 address	Support
	Multicast routing	Multicast to unicast conversion
	DHCP service	DHCP Snooping, Option 82, Server, Client
Management and Maintenance	Supported wireless LAN controllers	Ruijie WS Series Wireless Controller Ruijie MACC-Base Software Controller Ruijie Cloud (Public Cloud)
	Management protocol	Telnet, SSH, TFTP, Web
	Wireless Intelligent AI Optimization Service (WIS)	Support
	SNMP	SNMPV1,V2c,V3
	Syslog / Debug	Support
	FAT/FIT/MACC mode switching	Factory default firmware supports FAT (standalone) or FIT mode (WS controller) or MACC mode (Ruijie MACC-Base or Ruijie Cloud) management

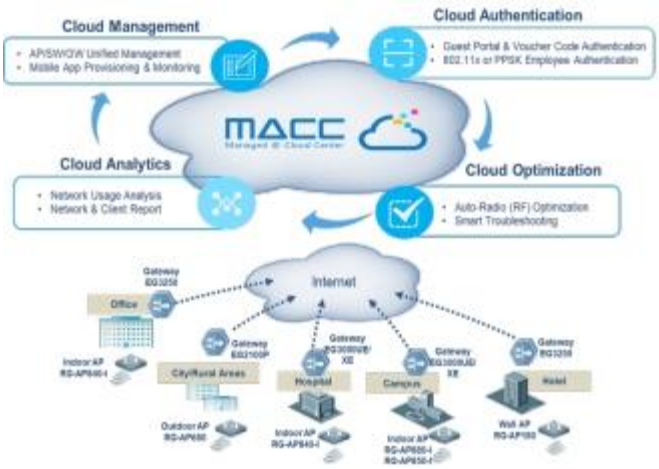
Application Scenarios

Private Cloud for ISP/MSP & Government

For enterprises with high demand on security, billing and portal system integration, along with diverse customer sites, the Ruijie RG-MACC private cloud solution is recommended, especially for ISP/MSP and government sector.

The Ruijie RG-MACC (Managed @ Cloud Center) is a revolutionary cloud management platform which supports unified management and configuration of APs, switches and gateway devices, as well as value-added marketing features and survey, etc. The RG-MACC is designed for education, retail chain stores, shopping malls, hotels, transportation, small and medium-sized enterprises, network operators and settings alike. The RG-MACC is consisted of various feature modules, such as management, marketing, AAA (authentication, authorization and accounting) and diagnostic tools, etc. The platform supports multi-tenancy feature, which is an ideal choice for ISP to deliver cost-effective managed service solution for massive SME customers.

RG-MACC Private Cloud typical solution architecture:



Solution Benefits:

- Support multi-tenant management
- Support cloud computing virtualization deployment
- Support unified networking device management, including access points, switches and gateway devices
- Support mobile app management
- Open API available for 3rd party integration

Hybrid Cloud for Enterprise & Campus

For enterprise office and campus with single or multiple sites and high-density AP deployment, Ruijie RG-WS6000 Series Wireless Controllers (on-premises) plus cloud management (optional) is recommended. The wireless controller appliances are installed at the customer's site with fully integrated wireless management and authentication feature, supporting up to 5000 APs per cluster. Optionally, the cloud management platform allows for value-added features like centralized device configuration and monitoring, AI radio (RF) optimization, reporting, etc.

Solution Benefits:

- Support centralized device management and reporting service by Ruijie Cloud (optional)
- Support ultra-seamless roaming management
- Support one-click AI radio (RF) optimization powered by WIS engine
- High performance and security with all user authentication and traffic forwarding handled locally
- Support flexible authentication options, such as 802.1x, PPSK employee authentication, guest hotspot and voucher access code, etc.
- Support all series of Ruijie wireless access points

Ordering Information

Model	Description
RG-AP880-I	Ultra-high-performance Wi-Fi 6 (802.11ax) indoor wireless access point, concurrent dual-band dual-radio (4x4:4 in 2.4GHz, 8x8:8 in 5GHz), up to 12 total spatial streams and maximum 5.95Gbps wireless throughput, 4 Ethernet ports (1 100M/1000M/2.5G/5G/10G Base-T, 1 10G SFP+, 1 10/100/1000M Base-T ports, 1 10/100/1000M Base-T ports (LAN/ IoT Expansion), integrated with BLE, support PoE+ and local power supply (PoE adapters are sold separately, which could be purchased from Ruijie while DC Power adapters should be purchased from third-party vendors separately if needed)
RG-E-130(GE)	1-port PoE adapter (1000Base-T, PoE+/ 802.3at)

Ruijie Networks Co., Ltd.

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