RG-AP880-AR

Wi-Fi 6 Quad-radio Access Point

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Product Pictures

RG-AP880-AR

Product Overview

RG-AP880-AR is an IEEE 802.11ax-compliant quad-radio wireless access point (AP) released by Ruijie Networks for indoor high-density scenarios in the higher education, government, general education, finance, and business sectors.

The RG-AP880-AR complies with the IEEE 802.11ax, 802.11ac Wave 2, 802.11ac Wave 1, and 802.11n protocols. It adopts the hardware-independent quad-radio design and can provide a maximum access rate of 8.642 Gbps, which breaks through the bottleneck in wireless performance.

The RG-AP880-AR integrates Ruijie's exclusive AI Radio design. The extra intelligent radio card provides better access experience and real-time full-band security protection for users in the Wi-Fi environment.

Important factors such as the wireless network security, radio control, mobile access, Quality of Service (QoS), seamless roaming, and expansion of the Internet of Things (IoT) module are fully taken into account for the RG-AP880-AR. Therefore, it can be used together with Ruijie's access controllers (ACs) and RG-WIS to implement STA data forwarding, security, access control, and IoT application extension.

Moreover, the RG-AP880-AR supports local power supply and power over Ethernet (PoE), which can be selected based on power supply conditions. In addition, this AP can be mounted onto a wall or ceiling, making the AP especially applicable to large campuses, conference centers, plazas, or other densely populated scenarios.

Product Features

Independent Multi-functional AI Radio

The RG-AP880-AR is an AP of the AR series released by Ruijie Networks. It is equipped with a hardware-independent intelligent radio card, which improves user experience in the Wi-Fi 6 environment from multiple dimensions.

Intelligent Security Guard

As an independent radio card, AI Radio can, without impairing wireless experience, guard the security of 2.4 GHz/5 GHz full-band wireless networks in 24/7 mode and carry out radar scanning on the wireless networks to eliminate hidden risks. It is applicable to finance, education, government, business, and enterprise scenarios.

Improved Roaming Experience

AI Radio also supports real-time terminal status scanning to ensure stable roaming handover, without compromising wireless experience. Based on the scanning result of each neighbor AP, Ruijie's RG-WIS ensures better roaming decisions. This delivers good roaming experience, making the AP to be more applicable to scenarios, such as mobile working, video conferencing on mobile terminals, and online learning.

Simplistic Optical Ethernet Solution

The RG-AP880-AR supports Ruijie's Simplistic Optical Ethernet Solution.

This solution uses optical fiber lines instead of traditional Ethernet lines. It features a flattened network architecture, simple implementation, and neat cabling, supports elastic network upgrade, and has obvious advantages compared with the traditional Ethernet solution.

Multiple Service Ports

The RG-AP880-AR provides a maximum wired access rate of 6 Gbps.

One auto-sensing Ethernet electrical port can provide a maximum wired access rate of 5 Gbps, to implement high-speed transmission and conversion between wireless networks and wired networks.

Another auto-sensing Ethernet electrical port can provide a maximum wired access rate of 1 Gbps, to implement high-speed transmission and conversion between wireless networks and wired networks. It can also be used for IoT module expansion to support more application scenarios.

One 5 Gbps SFP port is adapted to the wired network link forms of different customers. It can be used for data transmission.

High-Speed Wireless Access, Higher Energy Efficiency, and Higher Reliability

1024-QAM High-Speed Access

The RG-AP880-AR adopts the quad-radio design and complies with the next-generation Wi-Fi standard IEEE 802.11ax. When the four radios are all enabled, the AP can provide a maximum wireless access rate of 8.642 Gbps, bringing high-speed access experience.

OFDMA High-Density User Access

The Orthogonal Frequency Division Multiple Access (OFDMA) feature in IEEE 802.11ax enables the RG-AP880-AR to divide a WLAN channel into a plurality of narrower subchannels, with each user occupying one or more subchannels. The AP can conduct scheduling to allow multiple users to receive and send packets concurrently, which reduces user contention and backoff, shortens the network delay, and improves network efficiency.

In a high-density deployment and access environment, the average rate per STA can be raised to four times that of IEEE 802.11ac.

Environment Protection and Lower Power Consumption

The RG-AP880-AR incorporates various new energy saving technologies, including the single-antenna standby technology, dynamic MIMO power saving technology, enhanced automatic power saving transmission technology, and packet-based power control technology. With these technologies as well as high-performance power design, the RG-AP880-AR is energy-efficient while providing the high-speed wireless access service.

Intelligent Recognition Function

The RG-AP880-AR is capable of identifying smart mobile terminals (such as iOS and Android terminals) and PCs. The RG-AP880-AR can be correlated with Ruijie's WIS to implement visualized wireless network management based on the wireless terminal type and network optimization in one-click mode.

Intelligent Local Forwarding

The RG-AP880-AR integrates Ruiie's intelligent local forwarding technology, which breaks through the traffic bottleneck of ACs. The data forwarding mode of the RG-AP880-AR can be pre-configured on a Ruijie's AC. Then, this AP determines whether data needs to be forwarded by the AC or be sent to a wired network for data exchange based on the SSID name or user VLAN.

The local forwarding technology forwards data that is sensitive to delay and requires real-time high-performance transmission through a wired network. This greatly reduces the traffic pressure of ACs for better adaption to heavy-traffic transmission of IEEE 802.11ax networks.

Abundant QoS Policies

The RG-AP880-AR provides abundant quality of service (QoS) policies. It supports WLAN/AP/STA-based bandwidth limitation as well as Wi-Fi Multimedia (WMM) that defines priorities for different service data. Therefore, the AP authentically implements timely and quantitative transmission of audio and video, and guarantees smooth application of multimedia services.

The multicast-to-unicast technology supported by the RG-AP880-AR solves the video lagging problem caused by packet loss or high delay in Video on Demand (VoD) and other multicast applications on wireless networks, and improves the experience in the use of multicast video services on wireless networks.

Comprehensive Security Protection and Ease of Use

Secure User Access

The RG-AP880-AR supports a wide range of user access authentication modes including web authentication, IEEE 802.1x authentication, MAC Address Bypass (MAB) authentication, and local authentication. It also fully supports Ruijie's Global Security Network (GSN) solution. Complying with the standard network access control standard, the AP strictly defines a set of network access control policies in terms of user access, authorization, host compliance check, network behavior monitoring, and network attack prevention. These control measures guarantee high network security for authenticated users.

Comprehensive Wireless Security Protection

Working with Ruijie's integrated network management system RG-SNC and RG-WS series ACs, the RG-AP880-AR is capable of offering a wide range of wireless security protection features including the Wireless Intrusion Detection System (WIDS), radio interference tracking, rogue AP containment, anti-ARP spoofing, and DHCP protection. With these features, an authentically secure and reliable wireless network can be built for users.

Multiple Easy-to-Use Authentication Modes

When used together with Ruijie's authentication system or multi-service ACs, the AP supports multiple efficient and convenient authentication modes such as MAB authentication, SM-based authentication, and QR code-based visitor authentication.

Users need to enter their usernames and passwords only for the first time when accessing a network by using STAs via MAB authentication. They can directly access the network with no need to enter the usernames and passwords again in their future access.

When visitors access a wireless network via SM-based authentication, an authentication page pops up, on which visitors can register accounts by using their mobile numbers and access the Internet by using the usernames and passwords in their received SMs.

QR code-based authentication is another convenient way for visitors to access the Internet. After accessing a wireless network, visitors can receive a QR code prompt. They can access the network after being authorized by the visited employees. Visitor behaviors are directly linked with the visited employees, providing better security.

Flexible Device Management Modes

Flexible Switching Between Fit Mode and Fat Mode

The RG-AP880-AR supports flexible switching between

fat mode and fit mode. In fit mode, the AP can be used after installation with zero configuration. The sound remote management greatly improves the operation, administration, maintenance (OAM) efficiency for wireless networks.

Web GUI-based Management

The RG-AP880-AR provides a web GUI for AC and AP management, so that O&M personnel can complete wireless configuration easily and manage the wireless network in an all-round manner. On the AC web GUI, O&M personnel can manage the AP as well as STAs connected with the AP, and restrict the rates and network access behaviors of the STAs. With the GUI, O&M personnel can plan, manage, and maintain wireless networks conveniently.

Correlation with Network Management Software

The RG-AP880-AR can be correlated with Ruijie's RG-SNC, which can manage all ACs and APs throughout the network, including device configuration backup and device status query. The RG-SNC provides a wireless thermal map to show the wireless signal distribution of APs in the actual environment.

All-in-One Design for Small Branch Offices

In small branch office scenarios, the RG-AP880-AR not only serves as an AP to provide the wireless access service for the office area but also serves as a VPN gateway. This all-in-one design simplifies network deployment and saves building costs for users.

PPPoE

The RG-AP880-AR can function as a PPPoE client and connects to the Internet via PPPoE. Then, no gateway needs to be set up in the branch office area for Internet access.

NAT

The RG-AP880-AR support the network address translation (NAT) function, which provides NAT service between the LAN in the branch office and the Internet.

IPSec VPN

The RG-AP880-AR establishes IPSec VPN tunnels between the branch office area and the headquarters to implement their LAN interconnection.

Technical Specifications

Hardware Specifications

Dimensions and Weight

Dimensions and Weight	RG-AP880-AR
Physical Dimensions (W × D × H)	230 mm × 230 mm × 51 mm
Weight	Main unit: 1.0 kg Bracket: 0.1 kg
Installation	Ceiling/wall-mountable
Lock Option	Kensington lock and security latch

Radio Specifications

Radio Specifications	RG-AP880-AR
Radio Design	Quad-radio design, including one AI radio that can switch between the 2.4 GHz and 5 GHz frequency bands. Up to 10 patial streams; Radio1: 2.4 GHz: 2 spatial streams, 2 × 2 MIMO Radio 2: 5 GHz: 2 spatial streams, 2 × 2 MU-MIMO Radio 3: 5 GHz: 4 spatial streams, 4 × 4 MU-MIMO Radio 4: 2.4 GHz/5 GHz: 2 spatial streams, 2 × 2 MU-MIMO
Operating Frequencies	IEEE 802.11b/g/n/ax: 2.4 GHz to 2.4835 GHz IEEE 802.11a/n/ac/ax: 5.150 GHz to 5.350 GHz, 5.725 GHz to 5.850 GHz (Note: The operating band varies in different countries.)
Data Rate	Radio 1: 2.4 GHz, 575 Mbps Radio 2: 5 GHz, 2.4 Gbps Radio 3: 5 GHz, 4.8 Gbps Radio 4: 2.4 GHz/5 GHz, 300 Mbps/867 Mbps Maximum wireless rate of the AP: 2.4 GHz + 5 GHz + 5 GHz + 2.4 GHz, 8.075 Gbps 2.4 GHz + 5 GHz + 5 GHz + 5 GHz, 8.642 Gbps
Antenna Type	Built-in smart antenna
Antenna Gain	2.4 GHz: 3 dBi 5 GHz: 3 dBi
Max. Transmit Power	20 dBm (Note: The transmit power varies based on the regulations in different countries and regions.)
Power Adjustment	Configurable in increments of 1 dBm
Modulation	802.11b: BPSK, QPSK, CCK 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Receiver Sensitivity	IEEE 802.11b: –96 dBm (1 Mbps), –93 dBm (5 Mbps), –89 dBm (11 Mbps) IEEE 802.11a/g: –91 dBm (6 Mbps), –85 dBm (24 Mbps), –80 dBm (36 Mbps), –74 dBm (54 Mbps) IEEE 802.11n: –90 dBm@MCS0, –70 dBm@MCS7, –89 dBm@MCS8, –68 dBm@MCS15 IEEE 802.11ac: HT20: –88 dBm (MCS0), –63 dBm (MCS9) IEEE 802.11ac: HT40: –85 dBm (MCS0), –60 dBm (MCS9) IEEE 802.11ac: HT80: –82 dBm (MCS0), –57 dBm (MCS9) IEEE 802.11ax: HE80: –82 dBm (MCS0), –57 dBm (MCS9), –52 dBm (MCS11) IEEE 802.11ax: HE160: –79 dBm (MCS0), –53 dBm (MCS9), –50 dBm (MCS11)

Interface Specifications

Item	RG-AP880-AR
Bluetooth	Bluetooth 5.1
USB Port	USB 3.0
Fixed Service Port	One 100/1000/2500/5000Base-T Ethernet port with auto-neogitiation, IEEE 802.3af/802.3at/802.3bt-compliant One 5GE SFP port, compatible with 1GE and 2.5GE SFP modules One 10/100/1000Base-T Ethernet port with auto-neogitiation, supplying power to IoT modules (48 V/12.95 W)
Fixed Management Port	One RJ45 console port
Status LED	One system status LED
Button	One reset button

Power Supply and Consumption

Power Supply and Consumption	RG-AP880-AR
Input Power Requirements	DC input: 54 V/1.1 A PoE/PoE+/PoE++ (IEEE 802.3af/at/bt-compliant) Note: If IEEE 802.3at-compliant PoE is adopted, the AP can be normally powered on, but AI Radio is disabled, and the downlink port and USB port cannot supply power to external devices.
Power Supply to External Device	Supported, supplying power to IoT modules through the PoE-capable Ethernet port
Max. Power Consumption	40 W

Environment and Reliability

Environment and Reliability	RG-AP880-AR
Temperature	Operating temperature: –10°C to +50°C (14°F to 122°F) Storage temperature: –40°C to +70°C (–40°F to +158°F) At a height between 3000 m (9842.52 ft.) to 5000 m (16404.20 ft.) above the sea level, every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).

Environment and Reliability	RG-AP880-AR
Humidity	Operating humidity: 5%RH to 95%RH (non-condensing) Storage humidity: 5%RH to 95%RH (non-condensing)
Safety Standard	GB 4943.1, IEC 62368-1
EMC Standard	EN300386, GB19286, GB17618

Software Specifications

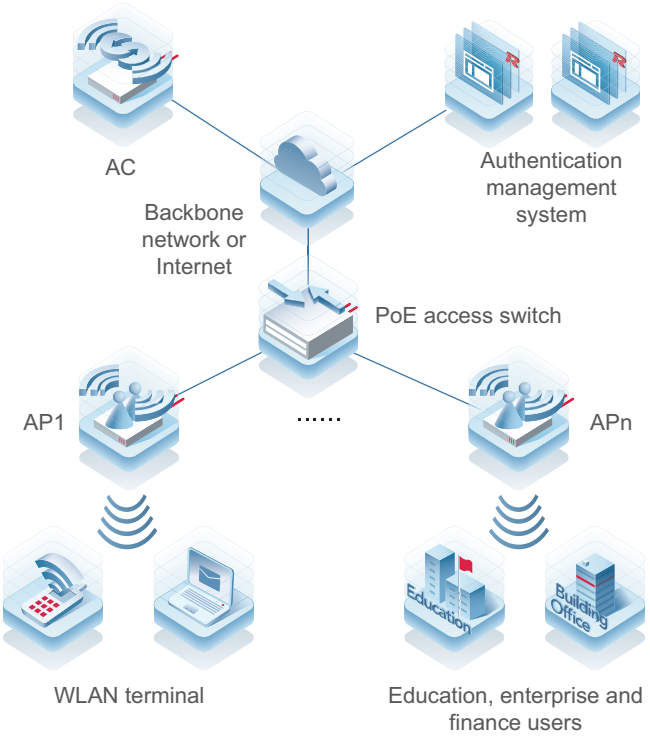
Software Specifications	RG-AP880-AR
WLAN Functions	Maximum number of connected STAs: 1552 SSID hiding Separate authentication mode, encryption mechanism, and VLAN attributes for each SSID Remote Intelligent Perception Technology (RIPT) Intelligent terminal recognition technology Intelligent load balancing based on terminal quantity or traffic STA limit ● SSID-based STA limit ● Radio card-based STA limit Bandwidth limit: STA/SSID/AP-based rate limit Fat/Fit mode switching: ● When the device works in fit mode, it can be switched to fat mode via an AC. ● When the device works in fat mode, it can be switched to fit mode through the local console port or Telnet mode.
Security	PSK and web authentication Data encryption: WEP (64/128-bit), WPA (TKIP), WPA-PSK, WPA2 (AES), WPA3 WeChat-based authentication QR code-based visitor authentication SM-based authentication MAB authentication Data frame filtering: whitelist, static blacklist, dynamic blacklist User isolation Rogue AP detection and containment Dynamic ACL assignment Remote authentication dial in user service (RADIUS) CPU Protect Policy (CPP) Network Foundation Protection Policy (NFPP)

Software Specifications	RG-AP880-AR
Routing Switching	IPv4 features: static IPv4 address and dynamic IPv4 address obtained via DHCP Multicast-to-unicast conversion PPPoE client IPSec VPN FTP ALG/DNS ALG
Management and Maintenance	Network management via Telnet or TFTP Web-based management Wireless positioning: RBIS Wireless marketing: WMC/MCP Fault detection and alarm Information statistics and logs

Typical Applications

This AP is applicable to densely populated areas with simple building structures, no special obstructions, and a large capacity demand. Such areas include meeting rooms, libraries, classrooms, bars, and leisure centers. This AP can be flexibly deployed based on the environment.

The following figure shows the typical network topology of the RG-AP880-AR.



Ordering Information

Model	Description	Remarks
RG-AP880-AR	IEEE 802.11ax-compliant quad-radio wireless AP for indoor high-density scenarios. The device supports a maximum of 10 spatial streams and a maximum wireless rate of 8.642 Gbps. It can work in IEEE 802.11a/b/g/n/ac and IEEE 802.11ax modes, switch between fit mode and fat mode, and support IEEE 802.3bt/at/af-compliant PoE	Required

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